INCENTIVE REIMBURSEMENT: EVALUATION OF AN EXPERIMENT

PART THREE

HOSPITAL RESEARCH AND EDUCATIONAL TRUST

Incentive Reimbursement: Evaluation of an Experiment

Part 3

Case Studies

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FOREWORD

In October 1969, the Social Security Administration (SSA) contracted with the Hospital Services of Southern California (Blue Cross) to conduct an experiment designed to test an alternative to the currently predominant cost (plus) method of reimbursement for hospital care. The alternative, tested by the Commission for Administrative Services in Hospitals (CASH) under subcontract with Blue Cross, was based on the offer of a financial reward as an incentive for hospital managements to reduce costs through the use of labor cost-control techniques. Twenty-five hospitals* in the Southern California area served as experimental test sites during the three-year Incentive Reimbursement Experiment (IRE).

In June 1970, SSA contracted with the University of California at Los Angeles for an independent evaluation of the Incentive Reimbursement Experiment. In 1971, the principal investigator of the evaluation project became the associate director of the Hospital Research and Educational Trust, Chicago, Ill., and the contract was transferred to the Trust.

The procedures, findings, and analyses of the evaluation project have been organized into the following reports:

- *Incentive Reimbursement: Evaluation of an Experiment*, an overview and summary of the total project;

- *Incentives for Hospital Cost Containment: Theory, Practices, and Prospects*, a "state of the art" review of incentive mechanisms in concept and operation;

- *Experimental Hospital Case Studies*, an indepth analysis of the environment and the impact of the experiment on that environment in seven of the test hospitals; and

- *Working Papers*, a compendium of technical working papers, developed throughout the course of the project, in the following areas: the experiment's sampling design technique and results; the selection and analysis of control group hospitals; the evaluation data system; the process used in auditing experimental data; CASH systems and procedures; the incentive reimbursement formula; a comparative performance analysis among experimental hospitals, and a comparative performance analysis between experimental and non-experimental hospitals.

  Copies of all project reports are available from the Hospital Research and Educational Trust, 840 North Lake Shore Drive, Chicago, Ill. 60611.

The evaluation project staff was assisted in its effort by many groups and individuals. While it is impossible to list all of them, the staff would like to acknowledge the support and guidance of the following: The Commission for Administrative Services in Hospitals, particularly Robert H. Edgecumbe, president, Harold E. Buck, vice-president, and the CASH field staff; Hospital

*Originally 26 hospitals were selected for the experiment. However, one institution did not participate for the full study period.

Services of Southern California; the Hospital Council of Southern California; the staffs of the experimental hospitals, especially those of the seven institutions used as case study sites; the project advisory committee, and Leon Bernstein, Dr. P.H., senior social science research analyst, Division of Health Insurance Studies, Social Security Administration.

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INTRODUCTION

In recent years, rising hospital operating costs have become a vital concern of patients, hospital administrators, leaders in the health care field, the insurance industry, and government, and the general public. In response to this growing concern, an experiment was conducted in Southern California, from 1969 to 1973, that offered participating hospitals a financial reward for lowering operating costs through improving labor productivity.

Known as the Incentive Reimbursement Experiment (IRE), the program was conducted by the Commission for Administrative Services in Hospitals (CASH), Los Angeles, among 25 hospitals[1] selected from a universe of nearly 300. The Commission for Administrative Services in Hospitals is an independent, not-for-profit corporation that utilizes industrial engineering and scientific management techniques to help hospitals improve cost effectiveness through more efficient use of their labor resources.

THE EXPERIMENT

The Incentive Reimbursement Experiment had two interrelated but autonomous components: (1) the implementation of the Labor Performance Control (LPC) Program, developed previously by CASH to measure and monitor labor productivity, and (2) the calculation of incentive gains (losses) and the payment, if earned, of incentive awards.

Under the LPC program, labor productivity was measured by a monthly comparison of labor performance standard hours and hours actually worked, both for the hospital as a whole and for individual departments. The resulting performance index (PI) provided the sponsors of the experiment with a continual measurement of the degree of effectiveness with which labor was being used.

The standard hours developed for each department (cost center) were based on: (1) stopwatch time studies, (2) pre-determined time and motion data, and (3) work sampling. They were developed using the traditional industrial engineering concept that equates 100 per cent productivity index with the production level equal to a fair day's work. (Because of the dynamics of a hospital, provision was made in the experiment for review and modification of the established standards.)

On the basis of data generated by the LPC program, a formula was developed for computing an annual incentive payment for hospitals whose increased labor productivity resulted in cost savings. Participating third-party payers shared these cost savings with the hospitals in the form of annual incentive payments. It should be noted that no negative incentives were built into the experiment. Hospitals whose productivity decreased or remained the same were still reimbursed by third-party payers at full cost. Despite the fact that no penalties were involved, it was hoped that the incentive payments offered for reduced costs would serve as motivation for hospitals to increase labor productivity and decrease labor costs.

THE EVALUATION

Although the Incentive Reimbursement Experiment was conducted by the Commission for Administrative Services in Hospitals, it was evaluated by the Hospital Research and Educational Trust, Chicago.[2] Components of this evaluation included indepth studies of LPC data for the 25 hospitals as a whole and for each individual hospital. A special on-site review and evaluation of seven hospitals culminated in the comprehensive case study reports presented in this document.

The Case Study Approach

The case study approach was used in view of the evaluation team's expectation that participating hospitals would respond to the experiment in widely varying ways — from total uninvolvement to the development of action-oriented programs for improving productivity. This expectation was based on the fact that participating hospitals were under no obligation to improve labor efficiency and suffered no negative consequences if they did

[1] The original experimental group was 26 hospitals; however, only 25 participated throughout the experiment.

[2] Originally, the contract for the evaluation of the Incentive Reimbursement Experiment was awarded to the University of California at Los Angeles. When the principal investigator became associate director of the Hospital Research and Educational Trust, the contract was transferred to the Trust.

not. As already noted, only positive incentives for improvement had been built into the experiment.

Through the use of case studies the evaluation team could gain insight into the effectiveness of the financial incentive as a motivator for improved labor productivity and into the effectiveness of the CASH LPC program as a tool for improvement. The team could also gain insight into the effect of productivity changes on quality of care, employee morale, and utilization of services.

The selection of the seven hospitals to be used for case studies was based on the hospital's characteristics and on the study of LPC data for all participating hospitals.[3] Selections were made with reference to: (1) how representative the hospital was, in terms of size, ownership, location, and performance during the experiment, and (2) the need to study institutions representing varying performances. The evaluation team also selected a number of departments in each of the seven hospitals for special indepth data gathering and review. Selections included the nursing department, in each instance, and other departments, chosen on the basis of their performance during the experiment — i.e., increasing, declining, or variable. Nursing departments were reviewed in all hospitals because nursing accounts for more than 50 per cent of the payroll.

The case studies developed in this evaluation project consisted of three major activities, each of which provided a different perspective. They were: (1) the study of data generated through the LPC program; (2) the site visit, which included interviews with the chief executive officer, administrative staff members, department heads, and, where possible, medical staff members; (3) the interview with the CASH representative assigned to the hospital. Separate interview schedules were developed for each hospital staff category.

It should be noted here that two sets of interviews were conducted in relation to two of the case-study hospitals. The first interviews, designed to pre-test the interviewing procedures, were conducted halfway through the second incentive year and focused on the experience of the first incentive year. Follow-up interviews were held in these hospitals at the end of the experiment. Interviews related to the other five hospitals were conducted after the experiment was over. A problem arose, however, in relation to one hospital. This hospital experienced a complete turnover in management personnel toward the end of the experiment, and most of the key administrative personnel were unavailable for interview. As a result, a former chief executive officer — the one at the hospital during most of the experiment — was the only hospital representative interviewed. The CASH representative, however, was interviewed in depth.

Review of LPC Data

The indepth review of LPC data was used not only in selecting case study hospitals but also as background for hospital interviews. Moreover, it provided overall information necessary for the development of a comprehensive report.

Site Visits

Three main objectives were established for the site visits. They were:

1. To identify factors and conditions that seemed to contribute to the hospital's positive or negative performance, as measured by the CASH-IRE performance index;

2. To assess whether improvement in a hospital's performance index resulted from the experiment or from some intervening factors;

3. To assess (subjectively) the impact of the experiment on employee morale, manpower effectiveness, and the quality of medical care rendered.

In meeting these objectives, evaluators focused on the performance per se and on factors that might have affected it. Influencing factors included the following:

1. Attitudes of key staff members with respect to: (a) appropriateness of current hospital costs, (b) applicability of industrial engineering techniques to hospitals and the potential of such techniques for containing or reducing costs, and (c) applicability of the CASH Labor Performance Control Program and its potential for containing or reducing costs.

2. Receptivity of key staff members to CASH-IRE and, more specifically, to the LPC program.

3. Hospital's overall approach to operationalizing CASH-IRE and the LPC program and the approach of individual departments to doing so.

[3] A table giving characteristics of all the hospitals is the appendix.

4. Existence of such factors as labor disputes, major renovation or construction projects, medical staff disputes, or other situations that might affect a hospital's performance under experimental conditions.

5. Degree of support maintained for CASH-IRE and for the LPC program by the hospital's administrative and middle management staffs.

6. Degree to which operational programs were monitored and supported by the administrative and middle management staffs.

7. Degree to which, from the hospital's perspective, CASH representatives and other staff members were available and how much they contributed to improvement in the hospital's performance.

Interviews with CASH Representatives

The objective of the interview with the CASH representative was not only to corroborate the information obtained from interviews conducted during the site visit but also to obtain another perspective on the implementation process and its effect in each hospital visited. Each CASH representative involved had been assigned one or more experimental hospitals. His responsibility in each hospital included: introducing CASH-IRE; coordinating collection of base-line data for the development of standards; monitoring reports; assisting with the development of plans for improving performance, and, generally, overseeing the hospital vis-à-vis the experiment. The significant role of CASH representatives in the experiment, together with their relationships with the experimental hospitals, made their perceptions and comments a valuable supplement to the information obtained during interviews at the hospitals.

The Case Studies

The case studies that follow comprise three components: (1) a report of the site visits and interviews with hospital staff, (2) a report of the interview with the CASH representative, and (3) a summary and conclusion section that integrates and summarizes the two preceding reports and then presents the findings and conclusions of the evaluation team.

Hospitals participating in this experiment were identified by letter for the purposes of confidentiality.

It is hoped that the case studies presented here will provide the reader with an understanding both of the uniqueness of each of the hospitals, despite their common purpose of providing care, and of how this uniqueness bears on the results of any experiment designed to change the performance of a group of hospitals. The findings of the Incentive Reimbursement Experiment, as reflected in this case study document and in the other project documents, should be of interest to individuals or groups studying ways in which hospital costs can be reduced. They should be of value also to groups planning industrial engineering or incentive reimbursement programs in hospitals.

CASE STUDY: HOSPITAL A

INTRODUCTION

Hospital A, which is located in a small city in the southern part of California, is a physician-owned, short-term general hospital. At the beginning of its participation in the Incentive Reimbursement Experiment (IRE), conducted by the Commission for Administrative Services in Hospitals (CASH), Hospital A had 52 beds. By the end of the experiment, it had 159 beds.

During the course of the experiment, the hospital was both a "winner" and a "loser." In the first incentive year, it recorded an incentive gain, while in the second and third years it recorded incentive losses.

Presentation of CASH-IRE

At the beginning of the experiment, the assistant director of the CASH organization explained the experiment to the chief executive officer (CEO), detailing the Labor Performance Control program (LPC) on which it was based. Subsequently, orientation sessions were conducted for department heads, both in a group and individually. The experiment was presented in these sessions, and the LPC program was explained.

Statistical Summary of Results

As shown in Table 1, Hospital A's performance index (PI) varied slightly during the course of the experiment, beginning with a 72 per cent performance index in the base year and ending with a 74 per cent index. It recorded a total of $3,375 incentive gains and $73,321 incentive losses. (For the formula used in computing incentive gains [losses], refer to *Incentive Reimbursement Experiment*, Blue Cross of Southern California, 1973.) As also shown in Table 1, the hospital doubled its number of patient days and increased inpatient payroll almost two and one-half times over the life of the experiment.

Influencing Factors

A number of changes that occurred and situations that arose during the life of the experiment significantly affected the hospital's operation during that period. Among them were: (1) the hospital's expansion, (2) an over-abundance of hospital beds in the area, (3) a perceived threat of unionization, (4) a change in chief executive officers, and (5) the fact that Hospital A had not

Table 1. Total Hospital Summary Performance Indicators, by Incentive Experiment Years, and Computed Incentive Gains (Losses)

	First Year		Second Year		Third Year	
Item	*Base Year*	*Incentive Year*	*Previous Year*	*Incentive Year*	*Previous Year*	*Incentive Year*
Performance index*	72.30%	72.85%	76.77%	72.97%	74.54%	73.67%
Inpatient payroll*	$931,810	$923,624	$1,518,923	$1,599,580	$2,194,096	$2,234,721
Inpatient actual hours*	276,994	284,071	305,377	477,047	489,156	624,441
Inpatient standard hours*	200,259	206,955	234,453	348,098	364,613	460,052
Patient days	16,323	17,796	17,796	25,865	25,865	34,400
Occupancy	78%	84%	84%	45%	59%	59%

	First Year	Second Year	Third Year
Gross Savings (Loss)	$8,186	($80,657)	($40,625)
Total Incentive Gain (Loss)	$5,700	($61,920)	($31,889)
Net Total Award (Loss)	$3,375	($48,106)	($25,215)

**Previous year figures reflect adjustments related to wage differences or to changes in volume or standard hours.*

previously been a member of CASH and, therefore, the hospital staff was not familiar with CASH methodology.

The most obvious and probably the most significant change was the expansion of the hospital from 52 beds to 159 beds in the middle of the second incentive year. Directly related to this expansion was the increase in scope of services provided — including both expanded and new services — and the staffing and equipping of these services. In addition to expanding the Pediatric Department, the hospital added the following departments or services: inservice training, volunteer services, nuclear medicine services, and orthopedic services.

It was reported that construction activities had in no way affected the daily operation of the hospital. When the new facility was opened, the CASH organization applied its established methodology for adjusting standards in accordance with changes in bed complement.

Another factor that might have influenced Hospital A's performance was the over-abundance of beds in the area. The county in which this hospital is located was reported to have significantly more hospital beds than were needed, as did the larger service area. In the words of a former chief executive officer, "the approximately 100-bed expansion (of Hospital A) was not needed, particularly in view of the fact that the aerospace industry, a primary industry of this area, had fallen into particularly bad times." The low occupancy rate in this hospital during the later months of the experiment was said to reflect, in part, an outmigration resulting from the high level of unemployment.

A perceived threat of unionization, which occurred during the second incentive year, might also have influenced the hospital's operation during the experiment. At this time it was rumored (and the hospital administration accepted the rumor) that organizing activities could be expected, particularly in the Nursing, Housekeeping, and Laboratory Departments. In part because of these rumors, the hospital decided against making planned reductions in nursing staff and settled for reduced hours instead. Planned cutbacks in housekeeping personnel were also delayed, possibly because of the rumored union activity.

An additional influencing factor during the life of the experiment was the change in CEOs. Hospital A had two chief executive officers during the 36-month life of the experiment. The first held that position for 23 months. The second, who had been an assistant administrator for five months, held the position of CEO through the remainder of the experiment. The influence of the change in CEOs was compounded by the fact that most of the management team changed between October 1971 and June 1972.

As mentioned, the final influencing factor was that Hospital A had not been a CASH member and that neither the hospital's administrator nor his staff had any knowledge or understanding of CASH methodology.

Selection as Interview Site

Hospital A was selected as an interview site not only because of its performance but also because of its ownership and of the factors that affected its performance during the experiment.

Once Hospital A had been selected as an interview site, five departments were singled out for indepth data gathering and review. These departments were the:

- *Business Office*, which recorded a performance increase during the first and second years of the experiment and a substantial decrease in the last year;
- *Laboratory Department*, which demonstrated a variable and consistently low performance index;
- *Medical Record Department*, which demonstrated a variable and, in the last two years of the experiment, a significantly declining performance index;
- *Nursing Department*, which began and ended the experiment with a performance index of 75 per cent, recording indices of 78 and 72 per cent in the intervening years; and
- *Radiology Department*, which demonstrated a variable and consistently low performance index.

Tables 2 to 6 profile the performance of these departments during the life of the experiment.

EVALUATION INTERVIEWS

Because there had been an almost complete turnover in management staff at Hospital A, there were few persons available who could speak knowledge-

Table 2. Departmental Summary Performance Indicators — Base, First, Second, and Third Incentive Years — Business Office

Item	Base Year	Incentive Years		
		First	Second	Third
Performance index	78%	85%	89%	77%
Admissions	3,714	3,789	5,011	6,322
Standard hours	24,818	27,195	40,480	48,686
Actual hours	31,972	31,897	45,555	63,190
FTE variance*	(3.77)	(2.47)	(2.67)	(7.63)

Table 3. Departmental Summary Performance Indicators — Base, First, Second, and Third Incentive Years — Laboratory

Item	Base Year	Incentive Years		
		First	Second	Third
Performance index	56%	49%	69%	50%
Tests	23,834	30,496	73,318	129,944
Standard hours	7,272	8,611	19,314	20,809
Actual hours	12,975	17,613	27,860	41,270
FTE variance*	(3.00)	(4.74)	(4.50)	(10.77)

Table 4. Departmental Summary Performance Indicators — Base, First, Second, and Third Incentive Years — Medical Records

Item	Base Year	Incentive Years		
		First	Second	Third
Performance index	74%	82%	67%	56%
Discharges	3,714	3,789	4,996	6,322
Standard hours	8,062	9,044	11,736	14,695
Actual hours	10,942	11,021	17,402	26,404
FTE variance*	(1.52)	(1.04)	(2.98)	(6.16)

Table 5. Departmental Summary Performance Indicators — Base, First, Second, and Third Incentive Years — Nursing

Item	Base Year	Incentive Years		
		First	Second	Third
Performance index	75%	78%	72%	75%
Patient days	16,323	17,796	25,865	34,400
Standard hours	98,015	115,437	159,489	205,904
Actual hours	130,685	148,445	222,097	273,547
FTE variance*	(17.19)	(17.37)	(32.95)	(35.60)

**FTE variance is actual hours minus standard hours divided by an estimated average work year of 1,900 hours.*

Table 6. Departmental Summary Performance Indicators — Base, First, Second, and Third Incentive Years — Radiology

Item	Base Year	Incentive Years: First	Second	Third
Performance index	57%	71%	65%	63%
Examinations	2,963	2,828	4,077	6,148
Standard hours	3,962	4,685	7,287	11,194
Actual hours	7,011	6,567	11,291	17,833
FTE variance*	(1.60)	(.99)	(2.11)	(3.49)

**FTE variance is actual hours minus standard hours divided by an estimated average work year of 1,900 hours.*

ably about the experiment. It was suggested by the assistant director of CASH, therefore, that the chief executive officer during the last phase of the experiment be interviewed as the hospital representative, since he had been most involved with it. Although this person was no longer with Hospital A, he did agree to be interviewed. In view of the hospital staff's lack of knowledge of the experiment, this former CEO was the only hospital representative asked to comment. Two CASH representatives had been assigned to Hospital A during the experiment; however only one — the second one — was available for an interview.

Summaries of the two interviews follow.

Former Chief Executive Officer

Despite the fact that the individual interviewed was no longer associated with the hospital, he proved to be most cooperative and participated in a lengthy and indepth interview session.

As an assistant administrator, the interviewee had been responsible for CASH-IRE prior to becoming the hospital's chief executive officer. Thus, he was closely associated with the experiment for some 18 months and was well qualified to comment on the hospital's experience.

The former CEO's direct responses and his comments throughout the interview reflected a concern with efficient and effective hospital operations, as well as a concern with costs. This individual said he believed that industrial engineering techniques could significantly enhance the efficiency and effectiveness of hospital operations. However, he said he thought that the majority of health care personnel — service-oriented or life and death healing personnel — strongly resist the concept and the application of industrial engineering techniques in the health care setting.

With respect to his responsibility for the CASH program while he was assistant administrator, the interviewee stated, "I was told that there was an experiment at the outset. . . . I understood, tacitly, that nothing had been done. The CASH program was in name only. . . . I had to start from ground zero." Summarizing his impressions of the hospital's involvement with CASH prior to his employment, the interviewee said, "It was all external. . . . Some LPC reports were issued, and occasionally charts that were favorable were distributed to departments."

In his five months as assistant administrator, the interviewee indicated that his principal thrust vis-à-vis the CASH program had been in the Nursing Department. He indicated further that there had been a lack of orientation of the nursing staff to the CASH program, as well as to concepts such as hours per patient day. Moreover, he said, the nursing hierarchy rather strongly resisted the CASH program. In response to these circumstances, the interviewee said he had chosen the strategy of orienting nursing personnel to statistical or quantitative concepts, rather than of emphasizing the CASH program per se. From further comments made by this person, it became clear that his initial effort had been focused entirely on nursing and that his activities there had been limited to orienting the nursing service director and the assistant director to quantitative concepts. Nothing had been accomplished vis-à-vis the CASH program and/or staff reductions.

The interviewee stated that it was not until after he had assumed the position of CEO that he realized the full impact of the experiment and that there was money to be made. He subsequently, and contradictorily, commented that the financial incentive involved had provided little motivation because "the amount of money there was peanuts."

The interviewee was asked to comment on CASH-related activities that took place after he became the hospital's chief executive officer. Again, the Nursing Department had been the primary, if not the exclusive, focus. In the second incentive year, the concept of nursing hours per patient day had been introduced in the hospital. The interviewee said that, about this time, he had urged the director and assistant director of nursing service to visit two local hospitals. One of these hospitals actively employed the CASH program. The other had developed a nurse-staffing pattern based on a concept of the level of care required by patients.

Subsequently, the nursing service director and the assistant director stated that CASH standards were unrealistic and that they made no provision, in the hours-per-patient-day figure, for any variation in the mix of nursing personnel. The former chief executive officer indicated that he had agreed with this shortcoming of the CASH program and that a 4.8 hours-per-patient-day figure had been set (instead of the CASH figure) as the target for improving labor productivity in the Nursing Department. The CEO stated further that his activities, as well as those of the nursing service director and assistant director, had been carried out largely independently of the CASH program. He indicated that, at best, the LPC program had provided verification of actions taken in the Nursing Department. He stated, "We were more concerned with our own devices and would have achieved whatever we did with or without CASH."

The former CEO's only other reference to the use of the CASH program was with respect to the Housekeeping Department. According to him, the CASH program confirmed the necessity for reducing staff in the Housekeeping Department. When the perceived threat of unionization was over, the staff was reduced significantly.

According to the interviewee, a rather elaborate and sophisticated budgeting system was established at Hospital A during the third incentive year. This system included a cost-per-unit service indicator for various hospital cost centers and resulted in the generation of reports on a biweekly basis. From that time on, the former CEO said, the CASH program was almost totally disregarded, and the budget system procedures and reports were employed as the hospital's sole resource control mechanism.

In the course of the interview, the former chief executive officer volunteered the following specific criticisms of the CASH program:

1. The CASH acronym is repugnant and abhorrent to individuals in the hospital industry, i.e., those working in the life and death services.

2. CASH does very little to minimize the great resistance among hospital personnel to industrial engineering concepts or to quantification in general. (He stated that such resistance was probably rooted in the inadequacies of personnel who feel threatened by the concepts.)

3. With respect to nursing services, the CASH program does not account for the variable mix of nursing personnel. (According to the interviewee, the standard figure is basically an hours-per-patient-day figure, with no provision made for the varying mixes of RNs, LVNs, aides, and clerical support personnel.)[1]

4. A significant lag exists between "real" time and the time the LPC report is received by the participating hospital. (The interviewee stated that, in Hospital A, this lag was caused, *in part*, by the fact that the hospital had been consistently late in submitting the required data.)

5. The CASH program is inadequately staffed. (The interviewee stated that he had been hesitant to call upon the CASH representative to provide services because the hospital was receiving CASH services free. Even so, he said he did believe that the program was understaffed.)

6. Department head personnel resent "standard" standards and perceive them as irrelevant. (Here the interviewee was somewhat sympathetic to the view of the department heads. He cited the central supply room as an example. The central supply room at Hospital A had originally been a traditional operation. Subsequently, the sterilization functions were transferred to surgery and the remaining functions to the Purchasing Department. He indicated that, to his knowledge, the CASH program did not accommodate such circumstances.)

7. Administrators, administrative staffs, and department heads are not adequately trained by CASH or encouraged to promote the use of

[1] The CASH program is based entirely on manhours and in no case makes provision for the cost-saving strategy of employing the least well-trained person for the job.

CASH techniques and CASH data in the operation of the hospital. (The interviewee suggested that the CASH organization, at the very least, ought to be reporting hospital successes to other hospitals and encouraging participants to replicate these achievements.)

The former chief executive officer was asked to comment on the attitudes and perceptions of his predecessor. He said that his predecessor had been concerned with costs and cost reduction but that he was not oriented to concepts of efficiency and effectiveness or to industrial engineering techniques. The interviewee commented further that his former chief was a very religious man and that his approach to a more cost-effective operation was, in effect, to "preach to" his subordinates, encouraging them to produce more work and, at the same time, to contain costs. The interviewee said he was not aware of the manner in which CASH-IRE had been introduced in the hospital and stated that "little had been done with the program, vis-à-vis the hospital's operation, prior to my arrival at the hospital."

In response to questions concerning the performance of the five departments singled out for indepth review, the interviewee made the following comments.

He explained the variable performance index of the *Business Office* as owing to expanded services and expanded staff together with a related improvement in quality. He estimated that, during the second and third incentive years of the experiment, two or three clerks had been added to monitor governmental programs, including the wage-price freeze. In addition, one person had been added to assist in a major effort to improve accounts receivable. He noted that, as a result of this effort, average time for the collection of accounts receivable had been reduced from 72 days to 53 days within approximately one year. The interviewee also indicated that department staff had been increased by two or three insurance clerks. He stated that temporary service employees had been hired for these positions; he was unclear whether hours worked by temporary personnel had been submitted to CASH.

The former CEO made no mention of using the LPC program or LPC data in monitoring the activities of this department.

When asked about the variable and consistently low performance of the *Laboratory Department*, the former CEO responded that the chief pathologist was a member of the hospital's governing body and a major owner. He stated that this pathologist had free rein in staffing the department, and, although he had been aware of the hospital's involvement in the experiment and had been familiar with the CASH program, he had chosen not to use the LPC program in the Laboratory Department.

With respect to the *Medical Record Department*, the interviewee explained that the significant drop in performance index had resulted from a number of factors. These included expansion of service, expansion of staff, and improvement in the quality of the records. The former CEO also cited the addition of central dictation in the Medical Record Department, the initiation of central archives for medical, x-ray, and Business Office records, and the completion of more than 2,000 overdue records between February 1972 and April 1973.

The interviewee further said that an assistant who was a registered medical record practitioner and several clerks had been hired for this department. Moreover, a medical staff secretary had been hired and charged to it. The medical staff secretary performed some tasks previously handled by the Medical Record Department and also performed services for the Utilization Review Committee and for other medical staff committees.

According to the interviewee, all of the foregoing changes contributed to the reduction of the department's performance index. The interviewee could not recall whether changes in standards had been requested or made in accommodating expanded and added services.

The former CEO also mentioned a vast effort to improve the operation of this department, as well as to improve the quality of the hospital's medical records prior to a joint survey by the Joint Commission on Accreditation of Hospitals and the California Medical Association (CMA). (It should be noted that Hospital A had previously not passed the CMA phase of the survey mainly because of inadequate medical records.)

It was clear that neither the CASH program nor the data generated by it were used by the Medical Record Department.

In commenting on the *Nursing Department's* performance during the experiment, the former CEO stated that the department had been prepared to staff all 159 beds when the new facility opened, even though the demand for service at that time

had more closely approximated staffing for 58 beds. He recalled that the high staffing/low occupancy situation had been reflected in the department's low performance index, "which, at one point, dropped to 53 per cent." (It should be noted that LPC reports reflected a low of only 57 per cent for the 31 days ending August 31, 1971.)

The interviewee reiterated his previous statements regarding his efforts in the Nursing Department — first when he was assistant administrator responsible for the experiment and later when he was chief executive officer. He also described his efforts to orient nursing administration to quantitative concepts and re-emphasized the department's disatisfaction with performance standards and their failure to account for differing mixes of nursing personnel.

The interviewee also described changes of leadership in the Nursing Department. In the second incentive year of the experiment, he said, both the nursing service director and the assistant director were replaced and, subsequently, the position of assistant director was abolished. Then positions for three clinical directors were created as were three sub-level supervisory positions — so that there were a clinical director and a sub-level supervisor for each shift. In addition, an in-service training director and an admitting and discharge coordinator were hired. The former CEO stated that it was generally believed that these actions had improved the quality of the nursing service. He said comments of physicians, nurses, and patients supported this belief.

The interviewee reported that the CASH program and LPC data had played a very small role in actions taken to improve productivity in the Nursing Department. He restated the fact that, during his tenure as assistant administrator, the Nursing Department had rejected the CASH standards and, subsequently, had developed a nurse/patient staffing ratio of 4.8 hours of nursing care per patient day. The former CEO indicated that, in mid-1972, a flat dollar-per-patient-day amount was allocated to nursing service administration for providing nursing services. He pointed out that nursing administration had been permitted to staff in whatever manner it saw fit within this dollar limitation.

According to the interviewee, there had been no ongoing use of the LPC program or of the LPC data in the Nursing Department. He said further that the Nursing Department had not achieved a higher performance index because the standards had been found to be unacceptable and therefore unachievable. He added that the department's operating costs were ultimately quite acceptable, as measured by the cost per unit of service used in his budget plan.

The low and variable performance index recorded by the *Radiology Department* was explained, by the former CEO, in terms of expanded service and expanded staff. These expansions took place mainly in the third incentive year. Included was the second shift instituted during that period. The interviewee stated that call-back and on-call time had been reduced and that the net effect had been to save on labor costs. However, he reported the savings had not been accounted for in CASH-IRE results. (It should be noted that this is a shortcoming of the experimental design which is pointed out elsewhere in the evaluation report.[2])

The interviewee indicated that the *Radiology Department* had been a major revenue producer and, as measured by the hospital's budget system, had been a most satisfactory performer. Again, no mention was made of the use of the CASH program and/or its data.

During the interview, the former CEO alluded to the fact that he had classified departments as either static or dynamic. As examples of static departments, he named service departments, such as Housekeeping, Dietary, and Maintenance. He classified professional departments, including Nursing, as dynamic departments. With respect to these classifications, he stated that the static departments seemed to have been performing well and noted that the dynamic departments seemed to have been performing less well — as indicated by their performance index. He pointed out that it had not been necessary to apply the LPC program to the static departments. Although the foregoing statements would suggest that action had been needed and taken in the dynamic departments, the only example the interviewee could give was the action taken in the Nursing Department. Again, the interviewee dwelt on the unacceptability of the CASH standards to the Nursing Department and the resulting inapplicability of the program to it. In addition, the former CEO described approaches alternative to the CASH approach to improving and/or containing costs in the Nursing Department. He made no reference to the use of the LPC program or the LPC data in any of the other professional departments.

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[2] The Incentive Reimbursement Formula — Working Paper. Chicago: Hospital Research and Educational Trust, 1974.

In brief summary, the interviewee restated his perceptions of Hospital A's involvement in CASH-IRE. He said that, when he had become assistant administrator and assumed responsibility for the experiment, it was very apparent to him that the hospital had not actively employed the LPC program or its data. For the most part, the staff of the hospital had been completely unaware of the existence of such a program, and its data were not employed in any way by staff to contain or control labor productivity. He said further that, subsequently, only minimal use was made of the LPC program. However, in contradiction, the former CEO stated that the CASH program was the administration's main vehicle of control from August 1971 to February 1972, when it was supplanted by the new budget system developed. Despite the interviewer's consistent probing, the former CEO could not give concrete examples of how the CASH program had been used.

CASH Representative

The CASH representative interviewed in connection with Hospital A had been assigned to the hospital seven months after the onset of the experiment and remained in that assignment through its termination. His predecessor was no longer with CASH at the time of the interviews in Hospital A nor was he available for comment. (It is interesting to note that, at the end of the experiment, Hospital A expressed no interest in subscribing to CASH. Approximately one year later, however, it became a CASH member, and the CASH representative interviewed was reassigned to the hospital.)

During the interview, the CASH representative described the first chief executive officer as receptive to the experiment — up to the time that recommendations for staffing reductions were brought to him. On receiving such recommendations, the CEO had become totally resistant and, in the words of the interviewee, "seemed to become uninterested in the experiment." The representative stated that he had subsequently learned that the hospital's physician-owners were opposed to staff reductions in any part of the hospital — thus, the CEO's unwillingness to take recommended actions.

The representative stated that an assistant administrator had been assigned responsibility for CASH-IRE at the onset of the experiment. (The first individual responsible for CASH-IRE was the predecessor of the assistant administrator who had become chief executive officer and who was interviewed for this evaluation project.) The representative described the first assistant administrator as very cooperative and very sympathetic to the recommendations of the CASH representative. The representative explained that he had worked closely with this person in identifying departments that had low levels of labor productivity. Among the departments identified were Nursing, Radiology, and Pathology. After attempting to validate standards in these departments, the representative studied the department and then made recommendations relative to more appropriate staffing. Typically, the recommendations had been related to staffing in accord with the varying demand for service. These recommendations had been brought to the CEO by the representative and the assistant administrator and, in the words of the representative, had been "shot down."

Department heads were described by the interviewee as having been given ample opportunity to understand the LPC program. The representative stated that they had been briefed, initially, by the assistant director of CASH and that he, himself, had briefed department heads several times more.

The representative stated that he had worked with the nursing service director, who shared his belief that the Nursing Department was overstaffed. When the representative and the nursing service director approached the CEO with this information, the CEO revealed his unwillingness to take action because of the position of the owners of the hospital.

In response to questions about contacts with other department heads, the interviewee reported that such contacts had been limited, for the most part, to responding to their criticisms of the standards. The representative indicated that a number of departments had been restudied so that standards could be verified or changed.

The interviewee said he distinctly recalled the appointment of a new assistant administrator in mid-1971 and this person's subsequent appointment as CEO. Initially, this new assistant administrator had been assigned responsibility for the CASH program. The representative described the individual as having been very responsive to the experiment and to the LPC program and also as having expressed a strong desire to cooperate. The representative pointed out, however, that, despite the expressed enthusiasm, "nothing was really done." He explained that, while the suggestions and recommendations developed previously still had relevance, no action was taken.

The CASH representative said he had lost contact with the assistant administrator after the latter was promoted to the position of CEO. It was reported that the new CEO was so overwhelmed with the responsibilities of his position that he was unable to do much with the LPC program. The CASH representative said that it was not until the last part of the third incentive year of the experiment that some action was taken. He indicated that the LPC program was used and that improvements in labor productivity were reflected in the LPC reports generated late in the third incentive year of the experiment. When asked if there had been a change in attitude among the owners of the hospital that may have precipitated these changes, the representative said he did not know. He commented that it may have been a change in the attitude of the owners or that the new CEO may have decided to take action on his own to improve productivity.

The representative was then asked to comment on the performance of several departments. In doing so, he attributed the improvement in the *Business Office's* performance index — from 78 per cent in the base year to 85 per cent in the first incentive year — to efforts of the first assistant administrator responsible for CASH-IRE during this period. The CASH representative explained that this individual had been responsible for the Business Office and had taken steps to improve productivity in this area of his responsibility. The continued interest of the assistant administrator through the mid-part of the second incentive year was offered as the explanation for the Business Office's continued improvement to a performance index of 89 per cent in that year. The representative said that the decline to 77 per cent in the third incentive year had resulted from the effort to improve the very poor accounts receivable situation in the Business Office. The interviewee recalled that a number of personnel had been hired during the period to assist in this effort. When asked whether standards revisions had been requested to reflect expanded scope of services in this department, the CASH representative replied that, with the move into the new building, standards had been revised in all relevant areas, including the Business Office. Moreover, the standards revisions had been made retroactive to the opening of the new departments.

Identical explanations were given by the interviewee for the performances of two departments — *Laboratory* and *Radiology*. The representative reported having had little contact with the physician heads of these departments and limited contact with their chief technologists. He said that these departments had been "just riding the waves" and had totally disregarded the LPC reports.

An improvement of eight percentage points in the *Medical Record Department's* performance index — from 74 per cent in the base year to 82 per cent in the first incentive year — was described by the interviewee as an increase in the demand for service. The representative explained that discharges had been up and standard hours had been increased. This meant that the performance index had improved without any significant change in hours worked. With the move into the new building, the medical record staff was expanded. This expansion had taken place without consideration having been given to staffing in accord with demand — thus the decline in performance index to 67 per cent in the second incentive year. The representative also explained the further decline to 56 per cent in the third year in terms of the department's inability to staff on a variable basis.

The representative reported that, on numerous occasions — particularly in the third incentive year of the experiment — it had been brought to his attention that the Medical Record Department provided more services than other medical record departments and that standard hour allocations should be increased. The representative stated that, with the move into the new building, standards for this department, including provision for the addition of a transcription service, were revised and that the standards were made retroactive to an appropriate date.

According to the CASH representative, the *Nursing Department's* improvement from a performance index of 75 per cent in the base year to 78 per cent in the first incentive year resulted from an increase in demand for service that exceeded the number of nursing personnel added. Although patient days increased by about 8,000 after the opening of the new facility in the second incentive year, occupancy declined from 84 per cent to 45 per cent. The representative stated that the Nursing Department's decline in performance index to 72 per cent in the second incentive year was a result of the fact that no attempt had been made to use variable staffing techniques. The Nursing Department's three percentage point improvement in the third incentive year was explained as related to attempts to improve productivity toward the end of that year.

In response to questioning, the CASH representative indicated that the hospital's move into its new building had a very significant impact on his

activities. As already noted, standards revisions were made for many of the hospital's departments. In addition, the representative reported that all departments had double operations at one point — in the old building and in the new one. The representative stated that an attempt was made to account for this situation and adjustments in standard hours were made where appropriate.

The financial incentive of the experiment was perceived by the interviewee as having provided no motivation for improving labor productivity at any time during the experiment. The representative stated that it had not been until late in the third incentive year of the experiment that Hospital A had really used the LPC program.

SUMMARY AND CONCLUSIONS

The summary and conclusions presented here are based on the interviews conducted and on a review of CASH-IRE reports.

Summary

For the first incentive year of the experiment, Hospital A increased its performance index almost one per cent and earned an incentive award of $3,375. In the second and third incentive years, the hospital's performance index declined, and net total losses were computed in the amounts of $48,106 and $25,215, respectively. Hospital A was in a state of enormous flux during the last two years of the experiment. From the first to the third incentive year, the hospital's patient days doubled, and the inpatient payroll increased almost two and one-half times. There were related increases in actual and standard hours.

A number of factors had influenced Hospital A's performance during the course of the experiment. The most obvious, and probably the most significant, was the tripling of the hospital's bed complement in the middle of the second incentive year of the experiment. It was reported that the new construction did not affect the operation of the old facility. However, excessive staffing in the face of gradual growth in occupancy had obvious implications for the labor productivity of Hospital A. Study reports show that the CASH representative spent considerable time in adjusting standards — attempting to identify hours worked as related to the addition of beds — and in identifying other situations that required standards or hours-worked adjustments.

It was also reported that a perceived threat of unionization in the early part of the third incentive year resulted in a delay in planned staff reductions, particularly in the Nursing and Housekeeping Departments. It should be noted that, toward the end of the third incentive year, the housekeeping staff had been cut by approximately four full-time equivalent personnel, whereas the nursing staff had actually increased. Other factors mentioned as possible influences were a change in CEOs, an over-abundance of beds in the area in which the hospital was located, and the fact that Hospital A had not previously been a CASH subscriber.

Because of special circumstances, the established procedure developed for case studies was not used for Hospital A. Subsequent to the selection of this hospital for a case study, it was learned that there had been a recent change in chief executive officers and a widespread turnover in department heads. As a result, no one was available for an interview who was familiar with the hospital's participation in the experiment. In view of this situation, the assistant director of CASH recommended that a former CEO — the one who had held that position through the termination of the experiment — be contacted and interviewed. While this former CEO was considered to be the best qualified to comment on the hospital's involvement, he had not been with Hospital A during the first 18 months of the experiment. This individual had been appointed assistant administrator in June 1971; he became CEO in November 1971 and stayed through the termination of the experiment.

A further complication arose. There had also been a change in CASH representatives assigned to Hospital A during the experiment, and only the second one was available for interview. As a result, only two persons were interviewed with respect to Hospital A's participation in CASH-IRE.

Both the former CEO and the CASH representative were asked for their perceptions of the hospital's involvement in CASH-IRE during the first 18 months. While quite different explanations were provided, there was consensus that the involvement of the hospital during this period had been extremely limited and accomplishments were non-existent. The former CEO stated that he was not aware of the manner in which CASH-IRE had been introduced in the hospital but that "little had been done with the program, vis-à-vis the hospital's operation," prior to his assuming the job of assistant administrator. He said, "I had to start from ground zero." He indicated further that the

reason for the hospital's lack of involvement had been his predecessor's lack of orientation to the concepts of efficiency and effectiveness and, more specifically, to the application of industrial engineering techniques. He did say, however, that his predecessor had been concerned with cost effectiveness and had tended to "preach to" his department heads, encouraging them to be more productive.

The CASH representative reported that the standard orientation to CASH-IRE had been conducted in Hospital A. The assistant director of the CASH organization had oriented the chief executive officer, and, subsequently, orientation sessions had been held for department heads, both as a group and individually. The CASH representative reported that no actions had been taken to improve labor productivity that could be related to the LPC program or to its data during the first 23 months of the experiment. He explained that, during this period, the first CEO had been receptive to the experiment up to the point that recommendations for staffing reductions had been brought to his attention. The representative noted that he had worked with the first assistant administrator in identifying low-performing departments and in developing recommendations to achieve greater labor productivity. However, the representative explained that he was told by the CEO that the hospital's owners were not willing for him to reduce staffing in the institution.

The CASH representative reported that, in June 1971, the soon-to-be chief executive officer had been hired by Hospital A as assistant administrator. The representative stated that the new assistant administrator had expressed a strong desire to cooperate but "nothing was really done." He added that the previously made suggestions and recommendations were still appropriate at the time of the new assistant administrator's arrival but that no action had been taken on them. The interviewee said he suspected that the CEO had continued to resist recommendations for reduced staffing, despite any interest on the part of the new assistant administrator. The representative reported that he had lost contact with the assistant administrator when the latter was named chief executive officer in November 1971.

The representative perceived the new CEO as being so overwhelmed with his responsibilities that he was unable to involve himself with the LPC program. The representative stated that it was not until the end of the third incentive year of the experiment that some action was taken. He indicated that, at this point, the LPC program and its data were used and that actions were taken to improve labor productivity. These actions, he said, had been reflected in the improved performance indices of several departments. The representative said he did not know whether actions taken had been precipitated by a change in attitude among the owners or whether the new CEO had initiated them independently.

In a contradictory statement, the former CEO reported that, during the period from August 1971 to February 1972, the LPC program had been the principal method by which labor resource allocations were controlled in the hospital. However, he was unable to provide concrete examples of how the program had been used during this period, despite persistent probing. The CEO stated that, effective February 1972, a sophisticated budget procedure that he developed had been introduced in the hospital. Subsequent to this date, the LPC program had not been used at all. The CEO indicated that more cost-effective operations had been achieved, once the budget system had been instituted, and that improvements had been made in the use of labor resources during this period, which corresponded to the end of the third incentive year of the experiment.

The CEO and the CASH representative had quite opposite recollections concerning the nature and extent of the use of the LPC program in the last half of the experiment. They had common recollections that improvements in labor productivity were made at the end of the third incentive year. The difference in their recollections concerned the method by which these improvements were accomplished. The former CEO suggested that the accomplishments were the result of the implementation and use of a sophisticated budget system; the CASH representative suggested that they were the result of the effective use of the LPC program.

The former chief executive officer and the CASH representative were both asked to comment on the performance of several departments during the life of the experiment.

In response to questions concerning the variable and declining performance index in the *Business Office* during the experiment, the former CEO explained that services had been expanded and the quality of service had been improved. The interviewee estimated that, during the second and third incentive year of the experiment, two or three clerks had been added to monitor government programs, two or three insurance clerks had been

added (personnel from a temporary service), and one person had been added to assist in a major effort to reduce accounts receivable. The CEO indicated that no effort had been made to use the LPC or its data in the Business Office.

The Business Office's improvement from 78 per cent in the base year to 85 per cent in the first incentive year was attributed by the CASH representative to the use of the LPC program by the assistant administrator. The CASH representative stated that the first assistant administrator had taken steps to improve labor productivity in this area during the first incentive year. He attributed the continued improvement — to 89 per cent in the second incentive year — to the efforts of this assistant administrator. The decline to 77 per cent in the third incentive year, the representative explained, was the result of efforts to improve the very poor accounts receivable situation. When asked whether requests had been made for adjusting standards to reflect expanded service in the Business Office, the representative responded that, after the move into the new building, the Business Office was among the departments for which standards had been revised and revisions were made retroactive to an appropriate date.

The former CEO's explanation for the *Laboratory Department's* consistently low and somewhat variable performance was that the chief pathologist was a member of the hospital board and a major owner of the hospital. Therefore, he had free rein to operate his department. The former chief executive officer stated that the chief pathologist was aware of the LPC program and of his department's low performance index but was not willing to use the program. Apparently, the CEO had been unwilling to confront him on this issue.

The CASH representative reported having had little contact with any of the physician department heads, including the head of the laboratory. He commented that these departments had been "just riding the waves" and had totally disregarded the LPC reports.

The former CEO explained the variable and low performance of the Radiology Department on the basis of its having expanded services and staff. He implied that more services were being provided and that net labor costs had been reduced. This had resulted when a second shift had been instituted and when call-back and on-call time had been cut significantly. The former CEO commented that these achievements had not been accounted for by the LPC program. He added that the Radiology Department had been a major revenue producer and, as measured by the hospital budget indicators, had been a most satisfactory performer. Emphasis was added here with reference to the fact that the budget had been the determinant of resource allocation, not the LPC program. At no time, in fact, was mention made of the use of the LPC program in the Radiology Department.

The CEO explained the significant drop in the *Medical Record Department's* performance index — from 82 per cent in the first incentive year to 67 per cent in the second year to 56 per cent in the third year — as resulting from a substantial expansion in services and staff and from improvement in the quality of medical records. Included among expanded services, he said, were the central dictation unit, the central archives, and the hiring of a full-time medical staff secretary to work with various medical staff committees. The explanation for the improvement in the quality of medical records related to the completion of a great number of outstanding records and a general improvement in the content of the records, in preparation for a joint survey by the Joint Commission on Accreditation of Hospitals and the California Medical Association. (It has been noted that the hospital had failed to pass the CMA phase of the survey once before, mainly because of its medical records.)

The CEO was unable to recall whether changes in standards had been requested or made to account for the expansion and addition of services in this department. According to the former CEO, the LPC program and its data had not been used at all in the Medical Record Department.

The CASH representative explained that the improvement in the Medical Record Department's performance index during the first incentive year had resulted from an increased number of discharges and an increase in the related standards hours, without a concomitant increase in hours worked. He explained that, with the move into the new building, staff expansion had been undertaken without concern for variable staffing — thus, the decline in performance index to 67 per cent in the second incentive year and to 56 per cent in the third. The representative said that standards changes had been made. He stated that, with the move to the new building, revisions had been made that included provision for the addition of a transcription service and that these revisions had been made retroactive to an appropriate date.

In response to questions concerning the *Nursing Department*, the former CEO stated that, while he

had been assistant administrator responsible for the CASH program, the Nursing Department had been a principal target of his early efforts. He reported that the nursing administrative and supervisory hierarchy had rather strongly resisted the CASH program. As a result, he said he had chosen to orient these nursing personnel to statistical or quantitative concepts, rather than to emphasize the LPC program per se.

He reported that, after assuming responsibilities as the CEO, he had urged his nursing service director and the assistant director to visit two local hospitals. One of the hospitals was actually using the CASH program. The other had developed and was using a nurse staffing pattern based on a level-of-patient-care concept. These visits, together with the CEO's urging, were reported to have precipitated the nursing administration's first willingness to consider using a nursing-hour-per-patient-day figure to control allocation of nursing staff. The interviewee stated that a 4.8 hours-per-patient-day figure modified CASH staffing figure had been set as a target for the Nursing Department. This action, together with a number of changes in the organizational structure of the department, was reported to have greatly improved labor productivity, as well as quality of service. Further action was taken when the new budget system was introduced. The former CEO reported that the nursing service director had been allocated a flat dollar-per-patient-day cost figure and that the nursing administration could staff the service in whatever manner it saw fit within this dollar limitation.

The interviewee reported that CASH-IRE had played a very small part in the activities just described. He explained that the standards had been perceived as unacceptable — hence, unachievable. He added that, at best, the LPC data had been used as verification of improvements made, primarily, during the last incentive year of the experiment. "We were more concerned with our own devices and would have achieved whatever we did with or without CASH."

The CASH representative offered some contradictory opinions. He stated that he had worked with the Nursing Department; the nursing service director had recognized, in the early stages of the experiment, that her department was overstaffed and had reported this to the CEO. The CEO had not been willing to reduce staffing. The Nursing Department's improvement in performance index during the first incentive year was explained by the representative in terms of an increase in patient days, without a commensurate increase in hours worked. The decline in performance index during the second incentive year he explained in terms of the department's inability to use variable staffing techniques. He said the improvement in the third incentive year had resulted from hospital-wide attempts to improve labor productivity and from the successes achieved, primarily, toward the end of the third incentive year of the experiment. Contrary to comments of the former CEO, the CASH representative implied that the LPC program had been employed in these late third-year efforts.

Conclusions

Because of the often conflicting points of view offered by the former chief executive officer and the CASH representative interviewed, it is difficult to reach other than very general conclusions about Hospital A's involvement in CASH-IRE. However, it may be reasonably concluded that:

1. At no time during the experiment did the financial incentive motivate administrative or department head personnel to take actions to improve labor productivity.

2. With the possible exception of the Business Office, the LPC program was not used effectively to improve labor productivity through the first 18 months of the experiment.

3. The LPC program and its data may have been used on a limited basis in the last 18 months of the experiment to retard or control declining labor productivity.

While Hospital A presented a very unusual combination of almost bizarre occurrences over the three-year period, this case history is useful in illustrating the extent to which unanticipated events can influence the experience of a hospital participating in an experiment.

CASE STUDY: HOSPITAL D

INTRODUCTION

Hospital D is a short-term, general hospital, located in a large urban area. The hospital has 293 beds and provides a full range of medical-surgical, obstetrical, and pediatric services. During the course of the three-year incentive reimbursement experiment, Hospital D had two different administrators. As a participant in the Incentive Reimbursement Experiment (IRE), conducted by the Commission for Administrative Services in Hospitals (CASH), Hospital D received incentive reimbursement payments in each of the three incentive years of the experiment. Moreover, the hospital received the highest single payment made to a participating hospital and accumulated more total payments than any other.

Presentation of CASH-IRE

Hospital D's formal participation in the Incentive Reimbursement Experiment began in February 1970. In accordance with the usual procedure, the director of CASH and the CASH representative assigned to the hospital oriented the chief executive officer and his administrative staff. Subsequently, an orientation session was conducted for all department heads, which was followed by meetings between the CASH representative and individual department heads. In August of that year, additional orientation sessions were held for department heads and supervisors. The purpose of these sessions was to gain acceptance of the Labor Performance Control (LPC) program, on which the experiment was based, and an understanding of the program's standards and techniques.

Statistical Summary of Results

As shown in Table 1, Hospital D recorded the following performance indices from the base year to the third incentive year: 73 per cent, 78 per cent, 82 per cent, and 86 per cent. Its corresponding incentive payments were $119,052, $56,046, and $73,110, for a total of $248,208.

Influencing Factors

It was believed by the administrative staff that a number of factors had influenced the outcome of the experiment at Hospital D. Among them were: (1) the hospital's financial condition, (2) an almost complete turnover of managerial personnel between the second and third incentive year, (3) a growth in occupancy, (4) a contract for dietary services, (5) the federal government's Economic Stabilization Program, and (6) Hospital D's involvement with CASH prior to the experiment.

The fact that Hospital D was experiencing financial difficulty had both direct and indirect implications

Table 1. Total Hospital Summary Performance Indicators, by Incentive Experiment Years, and Computed Incentive Gains (Losses)

	First Year		Second Year		Third Year	
Item	*Base Year*	*Incentive Year*	*Previous Year*	*Incentive Year*	*Previous Year*	*Incentive Year*
Performance Index*	72.68%	77.83%	77.83%	81.96%	83.81%	86.03%
Inpatient payroll*	$5,118,784	$4,776,811	$5,084,580	$4,942,330	$5,448,200	$5,244,904
Inpatient actual hours*	1,248,733	1,238,873	1,236,607	1,165,007	1,165,007	1,184,445
Inpatient standard hours*	907,604	964,259	962,512	954,865	976,435	1,019,005
Patient days	70,725	73,872	73,872	73,107	73,107	76,707
Occupancy	66%	76%	76%	75%	75%	79%

	First Year	Second Year	Third Year
Gross Savings (Loss)	$341,973	$142,250	$203,296
Total Incentive Gain (Loss)	$248,545	$108,954	$155,522
Net Total Award (Loss)	$119,052	$ 56,046	$ 73,110

**Previous year figures reflect adjustments related to wage differences or to changes in volume or standard hours.*

for the hospital's performance during the life of the experiment. It was reported that the hospital's financial situation the year preceding the experiment and the first year of the experiment was quite serious. At times, in fact, the hospital had had difficulty meeting its payroll and paying its suppliers. Because of these financial difficulties, the chief executive officer had been extremely cost conscious, which might be one possible explanation for the hospital's improved performance during the first incentive year of the experiment.

A more direct effect of these financial difficulties was the commitment of the hospital's governing body and its medical staff to take any steps necessary to improve the fiscal stability of the institution. This commitment manifested itself in the recruitment and selection of a financially oriented chief executive officer at the beginning of the second incentive year. As a result, the entire management team had been changed. The new CEO had staffed key management positions with individuals who were also financially oriented.

Both the governing body and the medical staff strongly supported the policies developed and the actions taken by the new CEO to achieve financial stability. The CEO stated that "because the Board was concerned with its [the hospital's] financial position and because the medical staff was not getting what it wanted, I received firm support on cost-reduction or cost-containment decisions."

The growth in occupancy experienced by the hospital during the experiment was another possible influencing factor. In the base year of the experiment, the hospital provided 70,725 days of patient care, whereas in the third incentive year, it provided 76,707. The second CEO stated that he and his key staff members had developed new management information systems and new staffing and control patterns, particularly in the Nursing Department. These actions had made it possible for the hospital to accommodate the growth in occupancy without increasing staff.

The federal government's Economic Stabilization Program was cited particularly by the CEO as having had a significant influence on the hospital's performance during the experiment. He reported that, because of the provisions of that program and because of the hospital's financial circumstances, Hospital D was, in effect, allowed a zero net profit. The CEO stated, "If anything, this discouraged our promoting greater productivity. . . . We were motivated not to reduce personnel as long as we were in the excess profit area."

Another factor thought, by the CEO, to have influenced the outcome of the experiment was the hospital's contract for dietary services. He reported that, because the hospital was able to negotiate a very favorable dollar-per-patient-day rate in this contract, the contractor had an extraordinary incentive to reduce personnel and thereby improve productivity. At the time of the interview, in fact, the hospital's cost per patient day for providing dietary services was $2.00 less than it had been two years earlier.

Hospital D's involvement with CASH prior to the experiment was also thought to have been a factor in the outcome of the experiment. Although the hospital had become a member of CASH as early as 1963, the relationship was described as "on again, off again." Hospital D had initiated and terminated its membership several times between 1963 and the beginning of the experiment. The nature and extent of the hospital's involvement with CASH was not known. However, it was reported that performance reports were being received by the hospital from CASH during 1968. (The present CEO was not aware that Hospital D had previously been a CASH member.)

The lack of readily available information on the hospital's pre-IRE involvement with CASH suggests that Hospital D's involvement with the organization was not considered a significant factor in its performance during the experiment.

Selection as Interview Site

Because of Hospital D's exceptional performance, it was deemed particularly important to conduct a site visit there. The obvious intent was to determine how the hospital had been able consistently to improve its labor productivity and to determine the extent to which the LPC program and the experiment's financial incentive contributed to the hospital's accomplishments.

Indepth Studies

After reviewing departmental performances, the evaluation team selected five departments for indepth data gathering and review. The five were the:

- *Business Office*, which recorded variable performance indices throughout the experiment — 86, 92, 63, and 70 per cent during the experiment;
- *Dietary Department*, which recorded an initial base-year performance index of 85 per cent

and a closing performance index of 115 per cent;

- *Nursing Department*, which demonstrated a consistently improving performance index — increasing from 69 per cent in the base year to 82 per cent in the third incentive year;
- *Pharmacy Department*, which also demonstrated a low but improving performance index — ranging from 48 per cent in the base year to 64 per cent in the third incentive year; and
- *Radiology Department*, which recorded a variable performance index — 79, 86, 85, and 78 per cent.

Tables 2 through 6 profile the performance of these departments during the experiment.

The chief executive officer at Hospital D was contacted, and the purpose of the evaluation and its relationship to the experiment were explained. After the CEO had agreed to participate, the evaluation team identified departments of specific interest. The CEO, in turn, selected individuals for interview that he believed would be able to provide the greatest assistance.

In addition to interviewing departmental personnel, the survey team conducted interviews with the chief executive officer, a former chief of staff, and two CASH representatives. Summaries of these interviews follow.

EVALUATION INTERVIEWS

Because of the almost complete turnover of managerial personnel in the second incentive year, a special effort had to be made to gather information about Hospital D's involvement in the experiment and about its activities and accomplishments during the first incentive year. An assistant administrator who, during the first year of the experiment, had been the head of the hospital's Plant Services Department, was interviewed. Also the findings of an indepth study,* conducted by a former administrative resident at the hospital, were reviewed. Following is a summary of the information obtained from the interview and the study.

During the orientation sessions, CASH representatives had explained the role of the department head in the collection of data, the development of the standards, and the financial incentive aspect of the experiment. Subsequently, an assistant administrator and the controller had worked with department heads in developing the base data for the experiment. In some instances, the CASH representative had also consulted with department heads, and standards had been discussed and defended or modified. Time and motion studies had been made in the Hospital Supply, Dietary, and Laundry Departments in an effort to refine established standards.

During the first incentive year of the experiment, reorientation sessions were held for department heads and supervisory personnel. Moreover, a questionnaire had been developed and distributed to department heads, in an attempt to determine their understanding of the LPC program and to elicit recommendations for improving performance indices. It should be noted that, at this point, the interviewee and the study findings differ. One indicated that the CASH representative assisted each cost center to set reasonable goals, to translate figures into manhours, and to develop the improvement plan requested by the administration. The other indicated that the CASH representative, while available, offered little in the way of providing explanations or assisting department heads.

Despite the efforts described, there had been considerable confusion during the first incentive year regarding the origin of the standards. More importantly, there had been even greater confusion as to the meaning and the use of the LPC program. Selected findings from the questionnaire survey, which had been conducted by the former administrative resident, indicate that:

1. All of the department heads and supervisors responding to the questionnaire were aware that the hospital was participating in the Incentive Reimbursement Experiment.
2. Thirty per cent stated that the CASH performance index was of value to them in their roles as managers, but only 20 per cent of the respondents stated they referred to their LPC reports more than once a month.
3. Eighty per cent of the respondents said they did not believe that changes in the performance index reflected a real increase or decrease in labor productivity.
4. Only 20 per cent of the respondents said they thought that base-year standards for their departments were correct.

*The survey report is dated May 5, 1972; however no date is indicated for the survey.

Table 2. Departmental Summary Performance Indicators — Base, First, Second, and Third Incentive Years — Business Office

Item	Base Year	Incentive Years First	Second	Third
Performance index	86%	92%	63%	70%
Discharges	11,520	14,647	14,018	14,494
Standard hours	28,981	33,984	32,977	33,768
Actual hours	33,851	36,987	52,714	48,245
FTE variance*	(2.563)	(1.580)	(10.387)	(7.619)

Table 3. Departmental Summary Performance Indicators — Base, First, Second, and Third Incentive Years — Dietary

Item	Base Year	Incentive Years First	Second	Third
Performance index	85%	91%	102%	115%
Patient days	70,725	73,872	73,107	76,707
Standard hours	122,044	125,191	124,426	128,167
Actual hours	144,318	137,925	121,520	110,984
FTE variance*	(11.723)	(6.702)	1.529	9.043

Table 4. Departmental Summary Performance Indicators — Base, First, Second, and Third Incentive Years — Nursing

Item	Base Year	Incentive Years First	Second	Third
Performance index	69%	75%	80%	82%
Patient days	70,725	73,872	73,107	76,707
Standard hours	365,106	385,576	379,675	409,169
Actual hours	530,896	511,620	473,456	498,726
FTE variance*	(87.257)	(66.338)	(49.358)	(47.135)

Table 5. Departmental Summary Performance Indicators — Base, First, Second, and Third Incentive Years — Pharmacy

Item	Base Year	Incentive Years First	Second	Third
Performance index	48%	54%	64%	64%
Prescriptions	74,832	99,964	118,085	122,024
Standard hours	5,543	6,975	8,008	8,236
Actual hours	11,602	12,799	12,575	12,945
FTE variance*	(3.188)	(3.065)	(2.403)	(2.478)

**FTE variance is actual hours minus standard hours divided by an estimated average work year of 1,900 hours.*

Table 6. Departmental Summary Performance Indicators – Base, First, Second and Third Incentive Years – Radiology

Item	Base Year	Incentive Years First	Second	Third
Performance index	79%	86%	85%	78%
Examinations	22,557	25,771	31,065	30,125
Standard hours	27,072	30,837	31,935	30,969
Actual hours	34,123	36,020	37,487	39,680
FTE variance*	(3.711)	(2.727)	(2.922)	(4.584)

**FTE variance is actual hours minus standard hours divided by an estimated average work year of 1,900 hours.*

Thus, despite considerable efforts on the part of the CEO and on the part of the CASH representatives, the LPC program had not been well understood or the standards well accepted that first year. Moreover, there had been a lack of follow-through in establishing productivity goals for individual departments.

In response to questions concerning the productivity improvement during the first incentive year, the assistant administrator and the administrative resident cited, as a possible explanation, the high level of concern with operating costs because of the hospital's financial difficulties. However, neither of the two could identify specific actions that had been taken to contain or to reduce operating costs. The assistant administrator was unable to provide an explanation for the hospital's improvement during the first incentive year. The administrative resident concluded that the improvement in performance index had been the result of an increase in demand for services that had not been accompanied by related staffing increases. The resident further concluded that the experiment's financial reward had had a negligible effect on improving productivity.

In view of the foregoing, the evaluation team was unable to attribute the improvement in productivity and the resulting incentive payment during the first year to either the LPC program or CASH-IRE.

Chief Executive Officer

As previously noted, Hospital D had had two chief executive officers during the life of the experiment. The first CEO, who had been with the hospital 10 years, left after the first incentive year; the second, who was the individual interviewed at the end of the experiment, had started at Hospital D on February 1, 1971.

During the interview, the CEO was asked if any changes had taken place during the experiment that affected the hospital's operation. In response, he cited a trend toward increased occupancy, which had begun in 1971 and had continued through March 1972, increasing significantly thereafter. He also cited: (1) an increase in the scope of service in 1971, when the emergency room had been expanded; (2) the addition of more ICU beds in 1972, and (3) the reactivation of 26 beds that had been out of service.

The CEO also mentioned other changes. He said that his appointment and the hiring of a new director of nursing had brought a new management philosophy to the hospital. The new philosophy had resulted in new staffing patterns and controls, bringing about a significant reduction in staff and a curtailment of labor costs. In addition, he pointed out that the hospital had negotiated a food service contract in May 1971 with an outside organization that guaranteed a specified dollars-per-patient-day rate. This action had motivated the food service manager to reduce personnel in order to contain costs. The CEO also called attention to the Economic Stabilization Program of August 1971, which he believed discouraged productivity.

In response to questioning, the CEO said he believed that hospital operating costs were higher in the industry than they should be. He stated further that operating costs at Hospital D had also been high when he came to the hospital. However, at the time of the interview, he said that operating costs at his hospital were about what they should be. The CEO said that the level of efficiency in hospitals was, in general, less than adequate and could be improved significantly. He said that Hospital D was more efficient than most hospitals but that there was still room for improvement. He added, however, that he believed Hospital D to be

more efficient than the CASH figures reflected, because it provided more services than other hospitals. One problem cited by the CEO, with regard to efficiency, was the design of the hospital itself. He pointed out that having 34 beds per floor resulted in less efficiency than having a larger number of beds per floor.

When asked if the application of industrial engineering techniques could have an effect on the operating costs of hospitals generally and Hospital D specifically, the CEO replied, "There is no question that industrial engineering techniques could be used to decrease operating costs significantly." He added, however, that "common sense and the desire to reduce staff could produce comparable results."

The CEO stated that he was familiar with the LPC program and believed it could help greatly in decreasing operating costs in the hospital industry. However, he said he believed that the LPC had had only a moderate effect on the decrease in operating costs at Hospital D. The interviewee pointed out that his predecessor at the hospital did not understand the LPC program and did not use it. Therefore, the program had had no value whatever during the first incentive year of the experiment. He stated that it had taken many months after his arrival and many conversations between the CASH representative and the department heads before the LPC program was understood. He said LPC was "a tool, which, if used properly, gives management a measure of control."

The CEO could not comment on the motivational effect of the financial incentive of CASH-IRE on other hospitals, but he stated that it had not had a motivational effect on Hospital D. He said he believed that cost reimbursement would not provide motivation to curtail costs, especially when the reimbursement was for only 50 per cent of the patient days (those covered by the participating third-party payers). If 100 per cent of the patient days had been covered, some motivation would have been provided, he thought.

The interviewee said that motivation had to begin with the CEO and the pressures on him to perform. However, he said that a CEO generally would not fight the medical staff and the governing body to reduce staff. He pointed out that he was able to cut staff only because the governing body and the medical staff had supported him. The governing body had supported him because it wished to alleviate the dire financial straits of the hospital; the medical staff had supported him because it had been able to obtain equipment that it had not been able to obtain before. The interviewee suggested that an incentive payment made directly to the CEO would have provided far greater motivation to improve productivity.

In response to questions regarding how Hospital D used the LPC program, the CEO explained his mode of operation. He explained that, as CEO, he had been most concerned with "bottom-line" items on the financial statement. He had established performance improvement targets for the hospital in terms of achieving more favorable relationships among these bottom-line items. Consistent with this approach, the CEO had negotiated targets with his immediate subordinates, in these same terms, for their areas of responsibility. Thus, the LPC program had not been used directly by top-level management. (It is interesting to note, however, that just prior to the interview the CEO had requested CASH to generate LPC reports by area of responsibility. According to the CEO, the usefulness of the reports would be greatly enhanced.)

In response to a question about the time he spent on CASH-IRE-related activities, the CEO reported that he had spent approximately one hour per month on such activities. He noted, however, that he had spent more time on overall labor control activities in the hospital. Among the actions taken, he said, was the across-the-board hiring freeze he had imposed from March 15, 1971, through the summer of that year. With few exceptions, position vacancies could be filled only with his approval. He also pointed out that he had called the CASH representative in to explain how standards were established and to assist his department heads in understanding how they could use the LPC program as a tool. (In this respect, it should be noted that the CEO had not been concerned with the performance index per se. Instead, he had been concerned with whether the index had improved, thereby verifying progress toward previously established financial statement goals.)

The CEO said the only thing he had done to "sell" CASH to a less than enthusiastic staff was to promote a greater awareness of LPC as a management tool. In promoting this awareness, however, he had pointed out and described the program's discrepancies. At the same time, he had explained how it could be an effective tool despite these discrepancies.

The interviewee did state that his assistant administrators may have used CASH standards as leverage

in encouraging departments to work toward greater productivity. He stated that their concern had not been with the actual level of productivity but with whether there had been an improvement in productivity. He said he believed that using the LPC program had caused the department heads to analyze the way in which the performance index had been derived. In doing so, they had gained a better understanding of their jobs as managers.

As requested, the CEO gave his evaluation of the performance of the departments selected for in-depth analysis. He stated that the consistent improvement in the *Nursing Department* had resulted from actions taken by the department head to control the use of manpower resources, e.g., new staffing patterns had been developed and a position control system instituted. The improved performance index had reflected these actions.

The *Dietary Department's* consistent improvement was attributed to the negotiation of excellent contracts with two different dietary services during the experiment. Effective management by these two organizations had produced results. The CEO commented that many more dietary services were then being provided; hence the department's performance had been even better than its performance index of more than 100 per cent indicated.

The CEO discussed the performances of the *Pharmacy* and *Radiology Departments.* Both departments were thought to be appropriately staffed, regardless of the respective performance indices. The CEO stated that he knew "intuitively" that they were "okay." Moreover, he seemed convinced that the number of radiology examinations listed in LPC reports had been incorrect.

He explained the great variation in the *Business Office's* performance index during the experiment as the result of actions taken to solve problems related to accounts receivable and collections. The CEO stated that the individual responsible for this area had been given "carte blanche" to improve collections and reduce accounts receivable. Initially, this person had brought about improvement by adding personnel — hence, the decline in PI. The CEO explained further that the hospital had had computer problems during this period, which had also resulted in the addition of personnel.

In citing improvement factors in the hospital, the CEO mentioned the hospital-wide hiring freeze as the most significant. (It should be noted, however, that he had taken this action to control costs. He had not taken it in response to CASH-IRE.) Another factor he pointed to was the increase in the hospital's census. (Inasmuch as the increase did not occur until the second month of the third incentive year, it cannot be considered a significant factor in overall hospital performance during the three incentive years.)

The CEO's overall impressions seemed to be that quality had improved in the hospital, that staff morale was higher, and that patient satisfaction was at a high level. He noted that the medical staff had been pleased and that the census had been rising during a time when other local hospitals were experiencing a decline in census. While he reported that some individuals still had negative attitudes toward CASH-IRE, the CEO said he believed this to be inevitable because of the changes made in hospital routines.

The CEO said that the incentive payments received for the experiment were used to supplement hospital funds for capital expenditures. He reported, however, that some employees thought the money should have been used to raise employee salaries. The CEO noted that he had made a real effort to publicize the incentive payments to the medical staff and to the governing body.

In summarizing the motivational aspect of the experiment, the CEO said he believed that CASH-IRE had not been a real incentive for hospital administrators. To be a real incentive, he said, it should have included both penalties and rewards. He said he also believed that giving 10 per cent of the incentive payment to the CEO would have produced greater motivation. The interviewee stated that, had he been involved with the experiment at the onset, he would have pushed for an employee incentive compensation plan. Overall, the interviewee said, there had been too many "disincentives" during the period of the experiment. With the government's wage and price controls, for example, savings generated by increasing productivity had been taken by the government. Thus, the CEO perceived CASH-IRE as providing little motivation for improved productivity, even though the hospital had received incentive payments in each of the three incentive years.

Chief of Staff

In order to gain additional insight into the possible effects of CASH-IRE on the quality of care at Hospital D, the evaluation team interviewed a

former chief of staff. This individual was a general surgeon who had been on the hospital staff for 23 years. Although he held appointments at three other local hospitals, he estimated that from 60 to 70 per cent of his practice was concentrated at Hospital D. At the time of the interview, this individual was a member of the hospital's governing body.

The former chief of staff said he had become aware of CASH-IRE because of his membership on the governing body. However, he believed most members of the medical staff had not been aware of the experiment. Although the interviewee indicated that he believed the federal government was trying to get hospitals to provide care more cheaply, he said he had not known of the Social Security Administration's involvement in the experiment. He also stated that he had been unaware, at first, of its incentive aspect. He had believed the experiment to be an indigenous effort to decrease costs. As he understood it, CASH was to come in and determine work units needed by each personnel unit "to get the job done." Subsequent reports would be used as a management tool to "shave down" expenses.

At a board meeting following the first incentive payment, the interviewee had learned that costs had been cut and that an incentive payment had been received. He noted that his physician colleagues had known nothing of the incentive payment or of CASH-IRE. In general, the interviewee said he believed that CASH had had a beneficial effect on Hospital D by helping it to cut costs and to get back into "the black."

The interviewee noted that, since 1969-70, a greater emphasis had been placed on business and administration in the hospital. At the time of the interview, for example, he noted that fewer nurses were treating the same number of patients as before. He indicated, however, that he did not believe the quality of care had been compromised by the reduction in nursing personnel. He said he thought that personnel cutbacks had weeded out the marginal nurses and that the remaining "good" nurses were happy about the existing situation.

The former chief of staff noted, however, that some nurses had complained that they were working harder. The interviewee stated that the nursing aides were providing good care and were able to assist nurses more effectively because they were well supervised and had received thorough orientation to the hospital. Thus, the former chief of staff indicated his belief that the reduction in nursing personnel had cut costs but had not caused patients to suffer.

As a side remark, the interviewee said that room rates in Hospital D were low in comparison with those of other hospitals. In his opinion, rates should be increased to enable the hospital to keep up with needed replacement of equipment.

Regarding the hospital's level of efficiency, the interviewee said he believed that "things were moving quicker and better" but that there was still room for improvement. He indicated that, in general, the medical staff was not aware of the increased efficiency at the hospital. He said the staff knew that the hospital was in the black, that the hospital employed fewer personnel, and that more attention was being paid to how long a patient was hospitalized, but staff members did not equate these changes with increased efficiency.

The interviewee said he thought that industrial engineering techniques could be utilized in some areas of the hospital, citing transportation of patients from one unit to another as an example. In terms of the general application of industrial engineering techniques, however, the interviewee said such application was limited. He thought that these techniques could be used as yardsticks in many areas — but only yardsticks, inasmuch as they measured quantity instead of quality. To make his point, he cited the operating room. By CASH's productivity standards, it had performed poorly; by the medical staff's standards for quality, it had performed well.

In assessing the changes that had taken place in the hospital during the experiment, the interviewee said he believed that there had been improvement in staff effectiveness, patient satisfaction, staff efficiency, and the quality of patient care. At the same time, he said, the availability of staff and the availability of service had remained the same. Moreover, he said he thought that doctors' orders were being carried out more accurately and that doctors were being notified more frequently of their patients' conditions. He also indicated that information physicians were receiving from other hospital staff members had become more meaningful. He stated, too, that patients were being better looked after.

The former chief of staff indicated that these improvements were the result of a better quality of staff, of improved training, and of better coordination of nursing personnel, through the utilization of nursing coordinators. Overall, the interviewee

said he believed that Hospital D had improved in comparison with the other hospitals of comparable size in which he practiced.

In summary, the former chief of staff indicated that efficiency and effectiveness had been improved, with no negative effect on quality of patient care. He regarded this improvement, however, as a result of the change in personnel at the hospital, rather than as a result of the CASH program.

Hospital Personnel by Departmental Function

Business Office

In view of the substantial changeover in supervisory personnel in the Business Office during the period of the experiment, the chief executive officer had not arranged for an interview with a Business Office representative. No one was available that could provide an historic perspective of the department's involvement with either the experiment or the LPC program. Therefore, statements made by the CEO during his interview are included here for the purposes of this review.

The CEO had explained that, when he assumed his present responsibility, the hospital's very serious accounts receivable and collection problems had been among his primary concerns. In an effort to eliminate these problems, the person responsible for the Business Office had been given "carte blanche" to get results. While most departments had to operate under an imposed hiring freeze, the Business Office had been free to add people, as long as accounts receivable were reduced and collections improved. The CEO had also reported that the hospital had experienced computer difficulties at the time and, in order to maintain operations, additional personnel had been added.

As shown in Table 2, these actions had resulted in an increase of more than 8.5 full-time equivalent employees from the first to the second incentive year of the experiment. The table also shows a related decrease in performance index, from 92 per cent to 63 per cent.

The CEO explained in his interview that all of the actions had been taken quite independently of the experiment and of the LPC program. He had said the intent was to deal with the accounts receivable and collection problems. He had reported that these problems had been dealt with successfully and that, in recent months, an effort had gotten under way to adjust staffing in accord with workload. This new effort, he said, explained, in part, the fact that the Business Office had increased its performance index from 63 per cent in the second incentive year to 70 per cent in the third incentive year. The CEO noted that the staffing control effort had been undertaken independently of the LPC program.

Dietary Department

At the time of the interview, the food service director had been employed at Hospital D for approximately seven years. Prior to his employment there, this individual had spent his career in the Navy, as a food service manager. In 1967, the interviewee had assumed the position of production assistant in the hospital's Dietary Department, which had been headed by an executive dietitian.

In May 1970, the hospital had contracted with an outside organization for the provision of dietary services. Subsequently, the interviewee had become an employee of that organization, supervising the food service operation at Hospital D. In June 1973, the hospital changed food service organizations. Shortly after that change, the hospital had offered the interviewee a position in which he would act as "watchdog" for the hospital in its relationship with the food service contractor. The interviewee had accepted the position.

Because of these unusual circumstances, the interview with the food service manager departed somewhat from the format established for the experiment.

During the interview, the food service manager stated that he first had become aware of CASH in 1970. This awareness, he said, had been limited solely to the existence of the LPC program and to the receipt of monthly LPC reports. It was not until some time during 1971 that the interviewee had learned the hospital was participating in an experiment. The source of this information had been the hospital's employee publication, which had reported on the incentive reimbursement award. In response to probing designed to determine the interviewee's level of awareness of the CASH program and the extent of its use in this department, the interviewee said that the LPC reports had been enthusiastically received as a measure of the achievement of the department's management. He said an effort had been made to obtain, from CASH, data on the level of performance in dietary departments of other hospitals. The interviewee commented, "We were shooting to be number one and we wanted to see what the other hospitals were doing."

The interviewee explained the contractual relationship with the food service organization. He stated that the hospital had contracted for specified services at a specified dollar-cost-per-patient-day. Food service workers, he said, had been in the employ of the hospital, and the contractor had reimbursed the hospital for these costs. The interviewee reported that, shortly after the initiation of the first food service contract, industrial engineers employed by the contractor had studied the department's operation thoroughly. They had developed improved methods and had reduced staff. The interviewee reported that, during this period, the department had had no contact with CASH. He further reported that no significant changes had taken place in the physical plant and no capital improvements had been undertaken.

The interviewee stated that the first food service organization contracted with had been a small, new company at the time. As a result, the hospital had been able to negotiate a very favorable contract. Moreover, it had exerted great pressure on the organization to develop a cost-effective dietary service at the hospital. He added that the subsequent switch to another food service organization had been made because of the new organization's lower bid. The low bid was thought to have been the result of a concerted effort by the second, much larger firm to force the first one out of business. The interviewee said he believed that the food service organization employed at the time of the interview had been losing money on the contract, depite the fact that it had been operating a most efficient food service.

The interviewee said he thought that neither the LPC program nor the financial incentive contributed to the department's marked improvement in performance index. He contended that the improvements had resulted from actions taken by the food service contractors to make a profit, or at least to reduce losses on the contracts they had negotiated.

In the opinion of the food service manager, the marked improvements in productivity had been accomplished without sacrificing quality. He stated that he had not received or heard of any uncomplimentary comments regarding the food service from patients, physicians, or employees.

Nursing Department

Two separate interviews were conducted with members of the Nursing Department. The first interview was held with the director of nursing and the supervisor of care units, the second with a staff nurse and a nursing coordinator.

Director of Nursing/Supervisor of Care Units. The director of nursing had been with Hospital D for three years at the time of the interview. She had served as the assistant director of nursing from February 1970 through July 1971, when she had assumed the position of director. The supervisor of care units had been with Hospital D since January 1965 and had been a supervisor since 1971.

The interviewees reported that they had had no knowledge of the fact that the hospital had been a member of CASH prior to the onset of the experiment. In their opinion, Hospital D's operating costs were about right, and the quality of care provided was above average. The director of nursing said she thought the hospital's level of efficiency was a little on the low side, mainly because the hospital's single-room design required extra nursing time. Moreover, the hospital's 34-bed unit design was perceived as less efficient than a 50 to 60 bed unit. Both nurses agreed that industrial engineering techniques could be useful in hospitals if they were effectively used.

The interviewees reported that the nursing staff had had a very negative attitude toward CASH at the onset of the experiment. The former director of nursing had been opposed to the program and had communicated her attitude to her supervisors. The interviewees noted that the former CEO had held a meeting of the management staff in 1970 to make department heads aware of the CASH LPC program. Even so, they said, the program was never really understood. The nurses recalled that data had been collected in 1970 but that the departments had not known why these data were being collected. The nurses stated that the first LPC report had been a mystery to most, if not all, hospital personnel.

When the new director of nursing had taken over in July 1971, she had called in the CASH representative and had asked him to explain the program and the nursing standards. She said she believed that original data collected were inaccurate and she had asked for standards revisions for ICU-CCU, surgery, and obstetrics. At the time of the interview, her attitude toward CASH was positive, and her attitude had set the tone for a more positive acceptance of CASH by her supervisors.

The nurses interviewed were asked to discuss a number of the aspects of the LPC program. In

doing so, they pointed out that, while the LPC program was being positively received, the LPC standards were not entirely acceptable. The nursing staff believed that the standards did not account for some of the unique characteristics of Hospital D. Moreover, nursing personnel believed that the LPC program had not contributed directly to improving efficiency or effectiveness in the Nursing Department. Rather, the interviewees indicated that the program was used, in part, as a guide in the creation of their own labor control program. They did comment, however, that the LPC program was a "reasonably good guide." The director of nursing stated that they had refined CASH data to suit Hospital D and that the LPC program had been used on an ongoing basis only to verify the effect of actions taken independently of the program. In response to a question regarding the impact of LPC on quality of nursing service, the interviewees responded, "It had no impact. . . . We use Quality Control (a CASH-developed system of quality control) on a limited basis. . . . We have our own system." It was suggested by the interviewees that the performance indices in other departments may have improved at the expense of quality.

During the interview, the director of nursing said she believed the major improvement factors in her department were the revision of standards to improve accuracy and the increase in census, without a commensurate increase in staff, which required greater nursing efficiency. The director of nursing said she did not consider the CEO's hospital-wide hiring freeze as a significant contributor toward improvement, since nursing was exempted from this restriction. She saw the establishment of the position control system as another major improvement factor. The director of nursing stated that she had made her nurses aware of nursing hours and made them look at the patient load to determine necessary manpower. In this way, she had forced nursing supervisors to put controls on themselves, in terms of adding staff. According to the director of nursing, there had been no position control system in the Nursing Department before she had come. Therefore, no ratio of nursing hours per patient day had been determined. But she had established a position control system, in which the Nursing Department left vacant positions unfilled if the census was down. She stated that natural attrition had been used to accomplish the desired ratios and then position control had been utilized to maintain them.

In attempting to analyze the impact of CASH and the LPC program on the position control system, the director of nursing could offer only vague and often confusing information. She stated that CASH had been very useful in helping her develop her own position control and resource allocation system. When pressed for examples, however, she could not provide them. She stated, "We looked at CASH as a guideline, but we had our own staffing levels and staffing patterns." Her responses indicated that CASH standards had not been used directly in determining the desired staffing levels and patterns. The director of nursing stated that CASH had helped her to see where Hospital D fell within a group of hospitals and that the LPC had been used as a verification of the hospital's own position control system, which had provided more timely reports.

The implementation of a position control system in the Nursing Department seemed to be a reflection of the director of nursing's philosophy of nursing management and not a result of CASH-IRE. She had refined the CASH data to suit the hospital's needs. However, after the initial refinement process, it was questionable whether the LPC reports had been utilized, except as a check or verification of the hospital's own position control system.

In regard to the financial incentive aspect of CASH-IRE, both interviewees said they believed the nurses had not understood it and thus had little motivation to work to achieve a substantial incentive payment.

The interviewees were then asked if they had observed any positive or negative changes in the effectiveness or the quality of services in other hospital departments. Their initial response was "not really." However, they amended this, noting that Central Supply might have been understaffed, because carts had not been kept supplied properly nor had they been kept as clean as they had in previous years. The nurses reported that the Dietary Department also seemed off a bit, but they attributed this to the recent change in food service organizations. They said the Pharmacy Department had been better since evening hours had been extended. However, they indicated that there were still some problems with filling physicians' orders.

Regarding staffing in the emergency room, the director of nursing commented that it had not changed but that there had been an increase in the number of patients, which accounted for the emergency room's increase in performance index. The director of nursing said she believed that the emergency room staff was better distributed, in

terms of staffing during the heaviest hours, and that the emergency room would probably continue to improve its performance as the case load increased.

Staff Nurse/Nursing Coordinator. After interviewing the director of nursing and a nursing supervisor, the evaluation team interviewed a staff nurse and a nursing coordinator. The staff nurse had been with the hospital for five years, working on the orthopedic floor. The nursing coordinator had been with the hospital for four years — two as a staff nurse on the medical floor and two as the nursing coordinator on that floor. The interviewees' limited understanding of CASH-IRE made it difficult to follow the standard interview format, so an unstructured interview was conducted.

The interviewees reported that they had been aware of the word "CASH" and had been aware that some sort of experiment had been going on. They indicated, however, that they had not known that a financial incentive was involved. The staff nurse said she had first become aware of CASH when the nursing units were informed that they were allowed only "X" number of personnel. When an explanation had been requested, the nursing staff had been told that the allotment had been made according to the CASH criteria. They had been told further that CASH made the rules and that nothing could be done about them. The interviewees had no understanding of how CASH standards were determined. They recalled that some data had been collected for CASH in 1970, but they were under the impression that, once the data had been collected, the experiment was over.

The interviewees expressed the belief that CASH standards were inappropriate because they did not take into account the categorization of the patient — e.g., ambulatory and self-help versus more dependent patients. This misconception was the basis for the complaint that nurse/patient ratios did not account for the "quality" of the patient. The nurses also objected to the inclusion of the hours of unit clerks in nursing hours, since clerks do not give direct nursing care. The nursing coordinator stated that "sometimes you have enough bodies to do the work, but the mental and emotional responsibility is so great that you still feel you need more help. That's something CASH can't analyze and help us with." Moreover, the nurses stated that, while the medical workload was being handled, personal aspects of patient care were suffering. Notably, they said, the staff no longer had time for personal interaction and for visiting with patients and their families.

In looking back over the four years of the experiment, the interviewees noted that the number of attendants had decreased by one per unit, as the nursing guidelines had been established. They said they believed the guidelines had been too firm and that they had not accounted for the variable needs of the patients. The nurses did note, however, that a staff pool had been available from which to obtain additional help when a unit had an exceptionally heavy load of difficult patients.

However, most of the changes they cited seemed to relate to the growth of the institution, which had resulted in the opening of a new building in either 1969 or 1970. The nurses indicated that many of the older staff members had resented the depersonalization that had taken place with the institution's growth and with the changes in the department's organizational structure — particularly the change from head nurses to nursing coordinators. They pointed out, however, that newly hired staff members had come in with an acceptance of existing conditions. The interviewees said they thought the medical staff had been pleased with the nursing coordinator concept. With respect to the nursing-hour guidelines, the interviewees indicated they had been difficult, but stated, "We adjusted as nursing always does. . . . We always manage; we always get by."

When asked if they had observed any positive or negative changes in the hospital's efficiency, effectiveness, or quality of service during the experiment, the interviewees said they believed that quality had suffered at first, but, as nursing adjusted to the situation, the previous level of quality had been restored. The nurses said that the improvement in quality had been the result of the addition of the nursing coordinator. They perceived this person as being an extra RN on the floor. In regard to other hospital departments, the interviewees cited laundry and inhalation therapy as two areas that had been unhappy about the number of personnel allotted to them. The nurses said, however, that they did not believe that service in these departments had been compromised.

The interviewees said they had known nothing about the incentive payment until they read about it either in the hospital's employee publication or in a local newspaper. Neither understood where the money had come from or that CASH had been involved in any way. Both nurses assumed that the incentive awards had been received because of the efficiency of the new CEO and the new director of nursing. The interviewees were pleased that the hospital had received money because they knew it had been having financial difficulties.

Pharmacy Department

Two staff members were interviewed in this department — the chief of pharmacy and the senior staff pharmacist. The chief of pharmacy had been appointed to that position in October 1973. The senior staff pharmacist had been employed in the department for five years at the time of the interview. The CEO had included the latter individual in the interview because he thought that, in view of her tenure, she would be able to offer insight into the department's involvement with the LPC program and with CASH-IRE.

The senior staff pharmacist indicated that, prior to June 1973, she had been only vaguely aware of the CASH organization and had been completely unaware that the hospital was participating in an incentive reimbursement experiment. She recalled that, in March 1973, her former supervisor had requested that standards for the Pharmacy Department be reevaluated. Her only other recollection was that during recent years there had been some mention of the department's low performance index.

Because of the vague recollections of the senior staff pharmacist and because of the short tenure of the department head, the structured interview format was not followed.

The department head offered his opinion that, perhaps, the standards for the Pharmacy Department were in need of reevaluation. He stated that, relatively recently, the hospital had gone through a change in systems. Under the new system the Pharmacy Department was required to interpret physician drug orders. Interpretation of drug orders had previously been the responsibility of the Nursing Department. This change, he said, would require a modification of standards for his department. The chief of pharmacy said it was his belief that the effective application of industrial engineering techniques could be helpful to the operation of a pharmacy department. He said it would be especially helpful in developing new systems and procedures.

The senior staff pharmacist was asked whether she had heard anything from other hospital personnel regarding the CASH program. She indicated only that staff of some departments had expressed a need for additional personnel. As an example, she cited the Nursing Department. Both staff and supervisory nurses, she said, had commented that additional personnel were needed for the department. The senior staff pharmacist also indicated that she had heard about patient care not being up to what it should be.

In seeking an explanation for this department's low but improving performance index, the senior staff pharmacist pointed out that a 3:00 to 11:00 P.M. shift had been added in the Pharmacy Department during the first incentive year. She also noted that the department had experienced a significant increase in workload over the three-year life of the experiment.

Radiology Department

The director of the Radiology Department was a board-certified radiologist, who had been practicing at Hospital D for approximately 15 years at the time of the interview. This individual, in partnership with five other radiologists, provided radiological services for this hospital and for one other hospital in the immediate vicinity.

In response to a question about prior involvement with CASH-IRE, the interviewee stated that he had been unaware of any prior involvement on the part of the hospital or on the part of his department.

The interviewee perceived the operating costs at Hospital D as being about what they should be. He commented that this hospital's charges were lower but that its costs were about comparable to those of similar hospitals. Regarding the level of efficiency, he stated that radiology departments in hospitals generally performed at an adequate level of efficiency but that the level of efficiency at Hospital D was more than adequate. He said he did not perceive that application of industrial engineering techniques would be of value in radiology departments. The interviewee stated that the operation of departments such as radiology and pathology could best be improved by radiologists and pathologists and/or by technicians in these departments. He commented that the technical operations in these departments were such that only an individual trained in these aspects could contribute to improved efficiency of operations.

In response to specific probes regarding the LPC program and CASH-IRE, the interviewee stated that he had been aware of the existence of the LPC program. He indicated, however, that he had not been aware that the hospital was participating in an experiment. When asked to indicate the portion of his time spent with the LPC program, he responded that he had looked at reports each month, had compared his performance index with the indices of other departments in the hospital, and, occasion-

ally, had reported the figures to department employees, in a "kidding fashion."

The interviewee did not recall compiling and submitting base-line data nor was he familiar with the fact that input data had been submitted, on a monthly basis, to the CASH organization for the preparation of the LPC report. He stated that the LPC program had been of no value to the department's operation and that judgments of the department's operation had been based solely on how "doctors and patients feel." When asked to explain the reason for the department's improved performance index in the first and second incentive years and the decline in the third incentive year, the interviewee stated, "We were short for a while. . . . He [the CEO] gave in. . . . I believe we got an extra technician for the evening shift."

In response to general questions relating to changes in the hospital's operation, the interviewee commented that he had not been aware of any deterioration in the quality of patient care provided by the hospital.

The interviewee stated that, since he had not been aware of any financial incentive, he had not been motivated by it.

CASH Representatives

Two CASH representatives had been assigned to Hospital D during the life of the experiment. The first one had been the representative assigned prior to the onset of the experiment. He had continued on the assignment through the second incentive year of the experiment. The second representative had assumed this responsibility immediately thereafter and had remained as its representative beyond the termination of the experiment.

First Representative

At the beginning of the interview, the CASH representative suggested that the first and second incentive years of the experiment be treated separately. He explained that the change in chief executive officers, which coincided with the beginning of the second incentive year, brought about a radical change in the hospital's involvement in the experiment.

The CASH representative stated that Hospital D had been a "club member" of CASH prior to the onset of the experiment. He explained that "club member" was jargon used by the CASH organization to describe hospitals that were subscribing members of CASH but were limited participants in its programs. He illustrated his point by saying that, prior to the experiment, he recalled seeing the chief executive officer of Hospital D only once. He added that the first director of nursing had been an active member of the California Nurses' Association and that both the Association and this nurse had been adamantly opposed to the application of CASH nursing programs in hospitals. The representative implied that, since many of the pre-experimental CASH programs focused on nursing, the director of nursing's attitude may have been one of the reasons for this hospital's non-participation.

According to this CASH representative, the first CEO had been very enthusiastic about the experiment. He was reported to have made a very vigorous attempt to ensure that each of the department heads in the hospital fully understood the program and that each made attempts to improve his department's productivity. The representative reported that the CEO, at times, had been very aggressive and had behaved like a "bull in a china shop." He sometimes had lost his temper when department heads failed to understand the program or failed to take action to improve productivity. The representative stated that he believed Hospital D had been in financial difficulty when the experiment started and that the CEO had been struggling to ensure that revenues would exceed expenses. The representative said he thought the CEO had perceived the experiment as being of possible assistance in this struggle.

When asked what specific actions had been taken by the CEO to increase productivity, the CASH representative described an information system that had been developed and used by the hospital administration. He stated that a form had been developed that provided, on a monthly basis, information related to departmental productivity. Department heads had been required to justify their performance index and, at the same time, to indicate what they proposed to do to improve it. The representative stated that this reporting system generated a great deal of activity on the part of all department heads except the director of nursing. He said many of the department heads had called him and requested information, support, and recommendations on how to improve their performance index.

One of the hospital's assistant administrators had been given the responsibility for the CASH program. The CASH representative stated that it had been this individual who had really developed the

information system and who had been in charge of overseeing its operation. The assistant administrator was reported to have paid a great deal of attention to the LPC figures and had provided strong encouragement to department heads to take action to improve. He had been strongly supported in these efforts by the CEO. However, the interviewee said, despite the pressure of the hospital administration, the department heads remained very independent in their actions.

The CASH representative stated that the department heads at Hospital D had understood the CASH program very well but that they generally had resented it. The representative speculated that the resentment may have been a reaction to the extreme pressure placed on department heads by the chief executive officer.

When asked to comment upon the performance of the departments selected for indepth data gathering and review, the representative could respond only with respect to the Nursing Department. He once again described the extremely strong negative attitudes of the director of nursing and her adamant refusal to become involved in any way with CASH programs. The representative stated that the chief executive officer had requested that the representative not become involved with this department. The CEO had said he himself would handle it.

The representative indicated that the Dietary Department had become a contract service and that this may have accounted for its improved performance in the first incentive year. The interviewee was unable to comment on the reasons for the improved performances in the Radiology, Pharmacy, and Business Office Departments and implied that he had had little contact with them.

The representative stated that he was unable to identify specific activities undertaken to improve performance indices, despite the CEO's edict that improvements be made. The representative stated further that, in effect, the first seven or eight months of the experiment had been an orientation. He commented that whatever had been accomplished at this hospital during the first incentive year of the experiment probably would have been accomplished with or without use of the LPC program and with or without involvement in the experiment. He added that the hospital's financial problems had provided the primary impetus for any cost-saving actions taken.

The representative expressed his belief that the LPC program may have been used as a tool for identifying areas in which labor productivity could be improved and concomitant cost savings achieved. He also commented that the CEO may have used the program as leverage in getting department heads to improve productivity. The CASH representative did not perceive the experiment's financial incentive as a primary motivator. He implied that the serious financial condition of the hospital had been the primary motivator during this period of time.

As already noted, a new CEO had been employed at the beginning of the second incentive year. The CASH representative indicated that his relationship with Hospital D changed significantly as a result of the new CEO's personality and management style.

The new CEO was described as "egotistical and not willing to accept anything from CASH, believing his own judgment to be much better than any judgments offered by CASH." The representative expressed the belief that the new CEO had been unhappy about being committed to an experiment that had been initiated prior to his arrival at the hospital. The representative described the CEO as "generally critical of the standards . . . totally detached." Moreover, the representative said the CEO did not want to know anything about the experiment. The representative said he believed that the CEO was more concerned with "how to get around the experiment than how to work with it." He stated, "I had few contacts with the CEO, and they were all negative."

The CASH representative said that there had been a complete reversal in the hospital's involvement with the experiment. Prior to the appearance of the new CEO, contacts had been made, to some extent, with all departments in Hospital D except the Nursing Department. No contacts had been made there. With the hiring of the new CEO, a new director of nursing had also been appointed. The CASH representative indicated that, during the second year of the experiment, contact with this hospital was confined almost exclusively to the Nursing Department. However, the representative stated that even this contact had been somewhat limited. He explained that a local consulting firm had been called in to advise on proper nurse staffing patterns. The consulting firm had recommended that the new director work with CASH. On the basis of recommendations made by the consulting firm, the director of nursing had approached the CASH representative, seeking help in developing proper nurse staffing ratios. Whereas the former director of nursing was unwilling to accept a ratio of 5.5 nursing hours per patient day,

excluding clerical personnel hours, the new director established a ratio of between 4.5 and 5.0 hours per patient day, including clerical personnel hours. The representative stated that implementation of this new staffing ratio accounted for the improved performance index in the Nursing Department.

The representative said that the assistant administrator responsible for CASH-IRE had left shortly after the arrival of the new CEO. With the departure of the assistant administrator, the CASH representative more or less lost contact with the hospital. Contacts with departments other than nursing during the second incentive year were described as extremely limited. The representative stated that he was unable to explain the hospital's performance during the second incentive year of the experiment because of his limited contact with it.

Second Representative

The second CASH representative said the administrative staff of Hospital D was as receptive and supportive of the CASH program as the staff of any of the 30 hospitals with which he had dealt while employed by CASH. This description was based on the representative's experience during the third incentive year and afterwards.

The chief executive officer was described as understanding CASH-IRE thoroughly and, generally, as very receptive to it. The representative stated that, despite receiving a great deal of support from the CEO, he had had little contact with this individual. He explained the management and leadership style of the CEO, indicating the CEO would establish annual operating targets related to the profit and loss statement. The administrative staff would, in turn, be required to establish related targets for their areas of responsibility and to see that similar targets were established by each of their department heads.

The CASH representative stated that most of his contacts with Hospital D had been with the director of nursing and with an assistant administrator responsible for most operational services. The representative explained that these individuals had perceived the LPC program as a tool to be used in helping them achieve their financial targets. Accordingly, they would request that the representative assist them in achieving these targets — targets that had been selected in relation to established financial goals.

The representative said that such action had, typically, begun with a review of standards. Once the representative and the administrative staff members were satisfied with the validity of the standards, the representative would make recommendations on how to achieve greater productivity. Recommendations usually took the form of reducing staff, staggering shifts, and making other changes that would more closely relate staff to demand for service. The representative stated that the nature and extent of the involvement of the director of nursing and this assistant administrator had been indicative of their understanding of the LPC program and of their receptivity to, and general enthusiasm for, the program.

The CASH representative indicated that the department heads neither understood nor were they enthusiastic about the LPC program at the time he had assumed responsibility for the hospital. He explained that most of his contact with department heads had been of an educational nature. This included explaining the rationale for the LPC program and the derivation of the standards and demonstrating the potential use of the program. He reported that, once the department heads had understood the program, they had used it to some limited extent. For all intents and purposes, however, the use of the program had been limited to the director of nursing and the assistant administrator responsible for operations.

The representative reiterated that the CEO would set overall financial targets for the hospital. In turn, he would, in collaboration with the director of nursing and the assistant administrator, establish targets for their areas of responsibility. These two individuals would establish financial targets for department heads and, in selected departments, they would establish related performance index targets. In cases where performance targets were established, departments were encouraged to achieve their targets. The assistant administrator and the director of nursing used LPC data to monitor that achievement.

In response to questioning, the CASH representative could identify no factors that might have influenced the performance of the hospital during the third incentive year of the experiment. He stated that the standards had, generally, been well received by the hospital administration, although the administration had constantly pushed for standards adjustments in departments that had considerable standby time and, hence, recorded low performance indices. The representative also

indicated that he had spent more than an average amount of time with this particular hospital.

In a summary comment, the CASH representative emphasized that the LPC program had been "just part of the picture." He stated that the program had not been fully accepted but that it had been used as a tool to accomplish financial objectives. The LPC program was used, primarily, as a diagnostic tool to identify areas in which labor productivity improvements could be made. When asked whether the financial incentive had been a motivator at Hospital D, the CASH representative stated, "No, not in this hospital or, for that matter, in any of the hospitals for which I was the representative."

The representative was asked to comment upon his predecessor's observations of the second incentive year of the experiment. He stated that he believed there had been a personality clash between the CEO and his predecessor, and, as a result, his predecessor may have avoided contact with this institution. This would have accounted for the first representative's report that the hospital had been involved in the experiment on a limited basis only during the second incentive year.

SUMMARY AND CONCLUSIONS

Summary

Because of its exceptional performance, Hospital D was selected for a case study. The focus of the on-site visit was to determine how the hospital had been able consistently to improve its labor productivity and to determine the extent to which the LPC program and the financial incentive had contributed to the hospital's accomplishments.

Hospital D also presented the opportunity to explore a hospital in which a change in management occured. (There were several such hospitals among the 25.) A new chief executive officer had been hired and many department heads and supervisory personnel had been changed at the beginning of the second incentive year. As a result, interviews conducted in this hospital concentrated, for the most part, on the second and third incentive years of the experiment. Insight into the hospital's experience during the first incentive year was gained, primarily, through an analysis of this experience made by a former administrative resident at the hospital. The former chief of the medical staff also was interviewed.

Two CASH representatives had been assigned to this hospital during the experiment. The first had been the representative assigned to the hospital prior to the onset of the experiment; he remained through the end of the second incentive year. The second representative assumed his responsibilities beginning in the third incentive year and remained as representative after the experiment had been concluded. Interviews were conducted with both of these individuals regarding their experiences with Hospital D.

Hospital D had been a subscribing member of CASH prior to the onset of the experiment. The hospital was described as a "club member," which is CASH jargon for a hospital that is, essentially, a non-participant. The first CASH representative commented that, in the two or three years prior to the onset of the experiment, he saw the CEO only one time. He described the director of nursing as extremely opposed to the pre-CASH-IRE programs. He pointed out that at least the chief executive officer and the director of nursing had been exposed to CASH and its methods prior to the experiment, even though the exposure was limited.

Orientation to CASH-IRE had followed the standard format. The director of CASH and the CASH representative had oriented the CEO and members of his administrative staff. Subsequently, department heads had been oriented in a mass meeting, and meetings had been held by the CASH representative with individual department heads. It was reported that the CEO had diligently attended all orientation sessions, including those with individual department heads, and that this was illustrative of his enthusiasm for the experiment. The CEO was said to have made a concerted effort to engender enthusiasm for the experiment among his department heads. Continuous efforts had been undertaken in an attempt to assure that department heads thoroughly understood the basis for the LPC program, the meaning of the data generated, and the possible uses of the program.

The CASH representative had been requested to conduct a second orientation session approximately six to seven months after the onset of the experiment. According to the CASH representative, it had been after this orientation session that department heads had begun to have a reasonably good understanding of the LPC program.

During the first incentive year, department heads had been requested to establish performance index targets for themselves and to provide explanations of how they intended to achieve these targets. Moreover, an assistant administrator had developed

a form for monthly distribution to department heads that included relevant LPC data. It was reported that the assistant administrator had monitored and followed the accomplishments of the department heads during the first incentive year, encouraging them to improve.

Despite these efforts, a survey conducted at the close of the first incentive year by a former administrative resident indicated some misunderstanding of the LPC program, together with a general belief that the program was of little use to departmental operations. Survey findings had included the fact that all department heads and supervisors were aware that the hospital was participating in the experiment. Findings had also indicated that: (1) 30 per cent of the respondents believed the performance index was of value to them, but only 20 per cent said they had referred to their reports more than once a month; (2) 80 per cent of the respondents said they did not believe that changes in the performance index reflected a real increase or decrease in labor productivity, and (3) only 20 per cent of the respondents said they thought that the base-year standards had been correct. The CASH representative commented that the department heads generally had resented the LPC program and that the resentment may have been caused by the pressure placed on them by the CEO to improve performance indices.

All sources of information on the hospital's first incentive-year experience had referred to the hospital's financial difficulties and to its concern with operating costs. None of the information sources, however, could relate use of the LPC program or the offer of a financial incentive to the accomplishments of Hospital D during the first incentive year. With the exception of the administrative resident, hospital personnel had concluded that the improved labor productivity had been a reflection of the general cost consciousness that permeated the institution and had been the result of the financial difficulties experienced by the hospital. On the basis of the fact that the hospital had had approximately 3,000 more patient days in the first incentive year than in the base year of the experiment, the administrative resident had concluded that the improved labor productivity was a result of an increase in demand for service that had not been accompanied by related staffing increases.

Coinciding with the onset of the second incentive year of the experiment, a new CEO had been employed at the hospital. Various interviewees implied that this very financially oriented hospital administrator had been selected with the aim of improving the hospital's still serious financial situation. Because the hospital had previously experienced difficulty in meeting payrolls and in paying suppliers on a timely basis and because it had been unable to purchase equipment requested by the medical staff, the new CEO had received the full support of the board of directors and the medical staff. He had been authorized to take whatever reasonable actions were necessary to improve the hospital's financial position.

The new CEO had been unaware that Hospital D had been a subscriber to CASH prior to the experiment. Although the CEO had perceived industrial engineering techniques as a tool that could significantly decrease operating costs in the hospital industry, he had commented that "common sense and the desire to reduce staff could produce comparable results." Despite improvements made at Hospital D during the experiment, the CEO expressed the belief that there was still room for additional improvement.

It was reported that this CEO had not made direct use of the LPC program to accomplish results during the course of the experiment. Because he was most concerned with "bottom-line" items on financial statements, his style had called for establishing performance improvement targets for the overall hospital, in terms of achieving more favorable relationships among bottom-line items. Similar targets were then negotiated with subordinates for their areas of responsibility.

The CEO estimated that he had spent approximately one hour per month on CASH-IRE but had spent very much more time on overall problems of labor control. According to the CEO, he had attempted to sell the CASH program to a less than enthusiastic staff. He had seen the program as a means of promoting greater concern for labor productivity and of inducing department heads to use the data as a management tool. The CEO also reported that his immediate subordinates may have used the LPC reports and data as leverage to encourage department heads toward greater labor productivity. It was noted that the concern had not been with the actual level of productivity but with whether there had been improvement. The administrative staff had also been more concerned with whether the performance index verified progress toward previously established bottom-line financial statement goals than with the performance index per se.

The former chief of staff said he believed that efficiency and effectiveness had been improved,

with no negative effect on quality of patient care. But he regarded this improvement as a result of the change in personnel at Hospital D, rather than as a result of the CASH program.

The two CASH representatives described very different experiences with Hospital D during the second and third incentive years of the experiment. The first representative described the CEO as "very egotistical and unwilling to accept anything from CASH, believing his own judgment was better than any judgments CASH had to offer." The CEO was perceived by this individual as being unhappy that he had been caught in the experiment and more concerned with "how to get around it than with how to work with it." The representative stated, "He was totally detached and did not want to know about it [the experiment]. . . . I had few contacts with the CEO, and they were all negative."

Beginning the second incentive year, and with the appointment of the new CEO, there had been a complete reversal of this CASH representative's relationship with the hospital. In the first incentive year, he had had some contact with most departments and had made some attempt to encourage more productive use of labor. The Nursing Department had been singled out as a major exception, because the director of nursing had strongly resisted CASH programs. Moreover, the CEO had requested the CASH representative not to attempt to work with this department.

Once the new CEO had taken over, the CASH representative indicated that he had had little contact with any department other than nursing. It was explained that a new director of nursing had been hired and that a consulting firm had been retained to study nurse staffing and to make recommendations for improvement. The consulting firm had urged the director of nursing to consult with the CASH representative to determine proper nurse/patient staffing ratios. The CASH representative had, subsequently, worked at length with the director in developing a ratio of between 4.5 and 5.0 nursing hours per patient day, including clerical personnel hours.

Improvements made in the Nursing Department during the second incentive year of the experiment were attributed to the foregoing actions. Because of the CASH representative's lack of contact with other departments during the second incentive year, he was unable to attribute any other accomplishments to the LPC program.

The CASH representative assigned to Hospital D during the third incentive year described a very different relationship with Hospital D. Moreover, he described the hospital as an effective user of the LPC program — as effective, in fact, as any hospital he had worked with. Although the second representative had spent little time with the CEO, he described him as having a firm grasp of the program and as being a staunch supporter of it. Most of the representative's contact with the hospital during the third incentive year of the experiment had been at the assistant administrator level. He reported that assistant administrators had used the LPC program as a tool to accomplish goals they had negotiated with the CEO. According to the CASH representative, once the assistant administrators had negotiated targets with the CEO, they would in turn, negotiate similar targets with their department heads. These assistant administrators had used the LPC data to identify areas that could be improved. They had also used it as one measure of whether objectives had been achieved.

The representative who had been assigned to Hospital D in the third incentive year of the experiment described department heads as having been less than enthusiastic about the LPC program. Moreover, he said they seemed to have had little understanding of it. The representative had undertaken to reorient and educate these department heads. For the most part, the department heads did not initiate use of the LPC until after the experiment was over.

With the polar descriptions of Hospital D's involvement in the experiment during the second and third incentive years of the experiment, it would almost appear that two different hospitals were being described. Possible explanations include a personality clash between the first representative and the new CEO, which may have caused the representative to avoid any contact with the hospital until the new director of nursing requested assistance. In addition, it is possible that the new CEO had a number of specific objectives that he intended to accomplish in his first year and that his full attention was given to these objectives during that period. If the LPC program had been perceived by staff as having little utility in accomplishing these objectives, the CEO may have thought the program and the representative were a nuisance. If this hypothesis is correct, the CEO might then have turned to the LPC program after his first objectives had been accomplished, perceiving its value as a tool in the third incentive year of the experiment.

All of this may explain the negative perceptions of the CEO in the second incentive year and the

comments that the LPC program had not been used except in the Nursing Department. The foregoing might also explain the second representative's positive attitude toward the new CEO and his description of the relatively active use of the LPC program.

Indepth interviews were conducted in relation to five departments in Hospital D. In addition, explanations were sought from the CASH representatives and from the CEO for the performances of these departments during the experiment. An explanation had been sought for the *Nursing Department's* improvement in performance index from 69 per cent in the base year to 82 per cent in the third incentive year. There had been great surprise about, but no explanation for, the Nursing Department's improvement from a performance index of 69 per cent in the base year to 75 per cent in the first incentive year. The director of nursing during this period had been described as adamantly opposed to the application of any CASH programs in the Nursing Department. This opposition, coupled with a request by the CEO that the CASH representative not involve himself with this department, suggests that the improvement in productivity in this department cannot be attributed to the LPC program. When the data available are examined, it appears that, during the first incentive year of the experiment, there were approximately 10 fewer full-time equivalent employees in the department. At the same time, there was an increase of about 3,000 patient days, thus explaining the six percentage point improvement in performance index.

A new director of nursing was appointed during the second incentive year. Upon assuming this responsibility, she established an appropriate ratio of nursing hours per patient in each unit within the department. The CASH representative assisted in this task. Once the ratios had been established, a position control system had been developed.

Following these actions, the director of nursing reported that the LPC program had not been used on an ongoing basis thereafter but, rather, efforts had been made to adhere to the established nursing hour ratios and to maintain conformance with the position control system. Thus, in some measure, the improvement in the department's performance index in the second and the third incentive years can be attributed to the initial use of the CASH data and to the consulting services of the CASH representative.

Actions taken in the Nursing Department were limited to those taken by the director and by supervisory personnel. Nursing staff personnel had been aware of the acronymn CASH but had not been familiar with the programs. The nursing staff was very much aware, however, that staffing had been reduced, but nurses reported they did not believe that the quality of nursing care had suffered. They did indicate that they had less time to administer to the personal needs of patients after changes had been made in staffing patterns. A member of the hospital medical staff commented that the efficiency and effectiveness of the department and the quality of nursing care had, in fact, improved during the life of the experiment.

The *Dietary Department* had registered an 85 per cent performance index for the base year of the experiment. It had improved each succeeding year and, by the end of the third incentive year, had a performance index of 115. Early in the first incentive year of the experiment, the hospital had contracted with a private firm to provide dietary services. It was reported that a very favorable contract had been negotiated under which the hospital paid the contractor a fixed fee per patient day. The staff of the department had been employed by the hospital, and the contractor had reimbursed the hospital for payroll costs. Because of that very favorable contract, the contractor was forced to achieve maximum labor productivity. However, this improved productivity was reported to have been accomplished totally independently of the LPC program. The quality of food service in Hospital D was reported to be as good as, if not better than, that in comparable institutions.

The *Business Office* had registered an 86 per cent performance index in the base year, had improved to 92 per cent, had subsequently declined to 63 per cent in the second incentive year, and then had ended the experiment with a 70 per cent performance index. No explanation was provided for the improvement of six percentage points at the end of the first incentive year. A review of the data indicates that hours worked increased, and, thus, the improvement could be attributed only to an increase in demand for service — an increase of approximately 3,000 discharges over the base year.

The CEO explained the approximately 30 per cent decline in performance index from 92 per cent in the first incentive year to 63 per cent in the second incentive year. He pointed out that a very poor billing and collection service and a poor accounts receivable situation were among the many problems facing him when he assumed his position. He had given the person responsible for the function carte blanche to hire as many persons as necessary

to improve billings and collections and to reduce accounts receivable. The CEO stated that this had been accomplished and, in the third incentive year, attention had been given to improving the labor productivity in this department.

The CEO also discussed the performance of the *Pharmacy* and *Radiology Departments.* The pharmacy had begun with a base-year performance index of 48 per cent, had improved to 54 per cent, and then had recorded performance indices of 64 per cent in the second and third incentive years of the experiment. Personnel interviewed were unable to explain the varying performance of the Pharmacy Department.

The Radiology Department had begun with a performance index of 79 per cent, had improved to 86 per cent in the first incentive year, had declined to 85 per cent in the second incentive year, and then had declined to 78 per cent in the third incentive year. The chief radiologist said he believed that levels of efficiency and effectiveness had been appropriate in the Radiology Department, as had been the operating costs. The radiologist also said that industrial engineering techniques had little application in radiology departments because only an individual trained in the technical aspects of such departments could contribute to improved efficiency. No explanation was given for the performance of the department during the experiment. The CEO stated, however, that he had known "intuitively" that both the Radiology and the Pharmacy Departments were operating at a satisfactory level of efficiency. He stated further that these departments had been appropriately staffed, regardless of their performance indices.

Because of an almost complete change in managerial personnel at Hospital D, beginning with the second incentive year, and because two CASH representatives had been assigned to the hospital, it is somewhat difficult to evaluate the hospital's involvement in the experiment. As stated previously, accomplishments during the first incentive year of the experiment cannot be attributed to effective use of the LPC program or to motivation provided by the financial incentive offered. Rather, the accomplishments were seen as resulting from an increase in demand — an approximate increase of 3,000 patient days between the base year and the first incentive year — and from the imposition of rather strict controls on expenditures, which resulted from the serious financial condition of the hospital during this period.

The financial difficulties of the hospital were still apparent at the beginning of the second incentive year of the experiment, and these difficulties had both direct and indirect implications for the hospital's performance during the experiment. Because of the difficulties, the governing body had recruited and hired a CEO who was very financially oriented. Moreover, the CEO was supported by both the governing body and the medical staff in taking all reasonable actions to improve the fiscal stability of the institution. Related to the hiring of the CEO had been the selection of a new management team, which was also financially oriented.

Institution of the federal government's economic stabilization program in August 1971 may have also been a factor influencing the performance of this hospital during the experiment. The CEO stated that, "if anything, this discouraged our promoting greater productivity. . . . We were motivated not to reduce personnel as long as we were in the excess profit area."

Finally, accomplishments in the third incentive year were, in part, attributed to the hospital's increase in patient days without a concomitant increase in staff.

There was unanimity among the individuals interviewed regarding the motivational effect of the experiment's financial incentive. The financial incentive was not seen as a motivator at any time during the experiment. The CEO did comment, however, that had he been involved at the onset or if the experiment were to be repeated, some attempt would be made to distribute awards to employees. The incentive payments resulting from the experiment had been placed in general revenues.

Conclusions

Hospital D earned an incentive reward in each of the three years of the incentive reimbursement experiment. Among all participating hospitals, it earned the largest single annual payment and accumulated the most incentive payments. The preceding discussion provides the basis for concluding that:

1. The financial incentive of CASH-IRE provided no increase in motivation to improve either departmental or overall hospital labor productivity during the experiment.

2. During the first incentive year of the experiment, the LPC program was not effectively

utilized. Despite strong administrative support, the LPC program met with considerable confusion and lack of understanding at the department head level. In general, there was no indication that the program had contributed to the hospital's improved labor productivity.

3. In the third incentive year and, possibly, in the second, the LPC program was used as a management tool, primarily at the assistant administrator level. The LPC program was used, in part, to establish productivity targets for department heads and to monitor extent of the accomplishment of these objectives. It was also used otherwise to assist the assistant administrators in achieving targets they had negotiated with the CEO for their areas of responsibility.

4. The improved labor productivity in Hospital D occurred, primarily, as a result of actions taken to move the hospital from an unsound financial position to a sound one.

5. Labor productivity improvements were accomplished without sacrificing the quality of patient care.

The nature of this experiment is such that it is difficult to draw unequivocal conclusions regarding the participation of an individual hospital. Hospital D presents a particularly difficult problem because of the change in management and because of the polar opinions of the two CASH representatives assigned to it during the course of the experiment. There is little question that a concerted effort had been made to improve the financial condition of the hospital and that increased labor productivity had been one approach used. The extraordinary improvement in labor productivity is best evidenced by the fact that, at the end of the experiment, the hospital was being operated with approximately 100 fewer full-time equivalent employees than it was during the base year. To some limited extent, the LPC program and data, along with the consulting services of the CASH representative, did contribute to the hospital's accomplishments.

CASE STUDY: HOSPITAL F

INTRODUCTION

Hospital F, which is a church-operated, short-term general hospital in a large urban area, is also a major teaching hospital for the church-operated medical school. This 452-bed hospital maintains a full range of services, including psychiatric and rehabilitation services. Hospital F was already a member of the Commission for Administrative Services in Hospitals (CASH), when asked to participate in the Incentive Reimbursement Experiment (IRE).

Presentation of CASH-IRE

As in other experimental hospitals, the CASH-IRE project, which incorporated the CASH Labor Performance Control program (LPC), was introduced to the administrative staff by the director of CASH and the CASH representative assigned to the hospital. The meeting with the administrative staff was followed by an orientation meeting for all department heads, in which the CASH representatives and the CEO presented the project. At least two full days of meetings between the hospital's CASH representative and individual department heads followed. These individual meetings were for the purpose of explaining more fully the LPC program. The CEO also informed the medical staff of the experiment and described the LPC program to medical staff members. Subsequently, base-line data were gathered and base-year LPC reports generated.

Statistical Summary of Results

As shown in Table 1, Hospital F failed to earn an incentive payment during the three-year life of the experiment. A *declining* incentive loss, however, was computed for each of the three experimental years. It should be noted that the consistent and declining incentive loss corresponded to the hospital's declining performance index from 81 per cent for the base year to 78 per cent for the third incentive year. It is speculated the declining incentive loss may relate to a consistent decline in inpatient days; approximately 4,000 fewer days of patient care had been provided in the third incentive year than had been provided in the base year.

Influencing Factors

According to the chief executive officer (CEO), certain internal and external factors influenced the hospital's performance during the course of the experiment.

One of these influencing factors was the expansion of the hospital's bed complement, from 389 to 452

Table 1. Total Hospital Summary Performance Indicators, by Incentive Experiment Years, and Computed Incentive Gains (Losses)

	First Year		Second Year		Third Year	
Item	*Base Year*	*Incentive Year*	*Previous Year*	*Incentive Year*	*Previous Year*	*Incentive Year*
Performance index*	81.02%	79.09%	79.11%	78.82%	78.82%	77.81%
Inpatient payroll*	$7,432,192	$7,611,204	$8,141,857	$8,184,300	$9,103,489	$9,085,279
Inpatient actual hours*	1,941,271	1,981,160	1,981,169	1,998,003	1,998,003	2,101,476
Inpatient standard hours*	1,572,799	1,566,824	1,567,317	1,574,847	1,574,847	1,635,226
Patient days	124,922	123,554	123,554	119,991	119,991	120,960
Occupancy	90%	89%	89%	87%	87%	78%

	First Year	Second Year	Third Year
Gross Savings (Loss)	($179,012)	($42,443)	($18,210)
Total Incentive Gain (Loss)	($148,545)	($37,285)	($ 5,801)
Net Total Award (Loss)	($ 98,040)	($24,846)	($ 3,856)

**Previous year figures reflect adjustments related to wage differences or to changes in volume or standard hours.*

beds, during the second and third incentive years of the experiment. Even more significant, perhaps, was a change in the intensity of service involving 78 hospital beds. The eight-bed coronary care unit was expanded to 25 beds, and a six-bed surgical intensive care unit was expanded to 11 beds. The other 42 beds were accounted for by a concentrated care unit, which, on a progressive patient care spectrum, lay between the intensive care unit and the general medical/surgical units.[1]

Another factor believed, by the CEO, to be of significant influence was the reduction in occupancy experienced by the hospital during the life of the experiment. The CEO commented that "it is difficult to maintain a performance index (PI) under expansion conditions." (It should be noted here, however, that the CASH organization gradually increased the bed complement of the hospital for report purposes, consistent with the rate at which the hospital operationalized its expanded bed complement. CASH did not arbitrarily increase the bed complement, consistent with the rate that construction was completed. As a result, this factor did not have the impact that the CEO might have expected; it was only in the third year of the experiment that the occupancy dropped significantly — from 87 per cent in the second year to 78 per cent in the third year.)

Still another factor that the CEO believed might have had a significant influence on the hospital's performance was the earthquake that struck Southern California on February 9, 1971. After this earthquake, the hospital was required to make major repairs on a number of damaged walls; 28 beds were closed until October 1973 for shear wall construction. In addition, earthquake damage necessitated the relocation of a number of functions: auditing services, medical record transcription, nursing instruction, and public relations. Some changes were also required on the pediatric service. Moreover, the damage and the subsequent reconstruction impeded traffic flow on a main transportation corridor, which affected all traffic — particularly laundry and tray carts. The CEO did not know whether appropriate adjustments were made in standard hour allocations to account for this set of circumstances.

The fact that Hospital F began the experiment with a relatively high performance index was also identified as a factor that may have significantly influenced the hospital's performance. The CEO commented that the margin for improvement was less than that for most of the other experimental hospitals. (The fact that the CEO recalled the base-year performance index to be around 90 per cent — when, in reality, it was 81 per cent — is indicative of his rather vague recollections of specifics associated with the experiment.)

The CEO also identified a number of other factors he thought might have been an influence. These factors were related to the development and validity of standards and are more fully discussed in another section of this case study report.

Indepth Studies

After reviewing departmental performance during the experiment, the evaluation team selected four departments for indepth data gathering and review, the:

- *Nursing Department*, which recorded a consistently declining performance index, ranging from 79 per cent in the base year to 73 per cent in the third incentive year;
- *Radiology Department*, which recorded a consistently low, but varying, index — 59 per cent in the base year, 58 per cent in the first year, 73 per cent in the second year, and 68 per cent in the third year;
- *Medical Record Department*, which demonstrated a low and declining performance index, ranging from 57 per cent in the base year to 52 per cent in the third year; and
- *Admitting Department*, which demonstrated a consistently low, but stable, performance index, ranging between 50 and 52 per cent.

Tables 2 through 5 profile the performance of these departments during the experiment.

Selection as Interview Site

As indicated by the figures in the tables, Hospital F was one of several experimental hospitals that displayed a stable performance. Therefore, one purpose of the site visit was to determine the reason (or reasons) for this stability; another was to explore and explain the initial and continuing low performance indices of the several departments cited.

The following section of this case study report presents summaries of interviews conducted not

[1] An increase from 4,049 ICU/CCU patient days in the second incentive year to 19,168 days in the third year suggests that standards were properly adjusted to account for this change.

Table 2. Departmental Summary Performance Indicators – Base, First, Second, and Third Incentive Years – Nursing

Item	Base Year	Incentive Years: First	Second	Third
Performance index	79%	77%	76%	73%
Patient days	124,922	123,554	119,991	120,960
Standard hours	655,449	650,810	633,155	662,820
Actual hours	827,515	839,861	831,623	908,709
FTE variance*	(90.561)	(99.500)	(104.456)	(129.415)

Table 3. Departmental Summary Performance Indicators – Base, First, Second, and Third Incentive Years – Radiology

Item	Base Year	Incentive Years: First	Second	Third
Performance index	59%	58%	73%	68%
Examinations	21,538	24,079	25,909	27,882
Standard hours	35,608	38,117	41,851	43,538
Actual hours	60,161	65,718	57,373	63,609
FTE variance*	(12.922)	(14.526)	(8.169)	(10.563)

Table 4. Departmental Summary Performance Indicators – Base, First, Second, and Third Incentive Years – Medical Records

Item	Base Year	Incentive Years: First	Second	Third
Performance index	57%	56%	56%	52%
Discharges	12,732	12,883	12,744	12,630
Standard hours	22,364	22,612	22,384	22,201
Actual hours	39,482	40,735	40,105	42,443
FTE variance*	(9.009)	(9.538)	(9.326)	(10.653)

Table 5. Departmental Summary Performance Indicators – Base, First, Second, and Third Incentive Years – Admitting

Item	Base Year	Incentive Years: First	Second	Third
Performance index	51%	50%	50%	52%
Admissions	12,732	12,883	12,744	12,630
Standard hours	20,308	20,548	20,327	20,145
Actual hours	39,442	40,725	40,390	38,708
FTE variance*	(10.070)	(10.619)	(10.559)	(9.770)

**FTE variance is actual hours minus standard hours divided by an estimated average work year of 1,900 hours.*

only with members of the administrative staff but also with staff members of the four departments reviewed in depth and with CASH representatives.

EVALUATION INTERVIEWS

During the series of interviews, the evaluation team queried hospital staff members on such general subjects as hospital costs — in their own hospital and in other hospitals — efficiency and effectiveness in their institution and in individual departments of that institution, and the validity of industrial engineering techniques in hospitals, as well as on specific subjects related to the hospital's performance during the experiment.

Individual staff members interviewed included: chief executive officer, assistant administrator for finance, director of nursing service, medical nursing supervisor, director of medical records, chief technologist (Radiology Department), chief administrative technologist (Radiology Department), chief of admitting, and assistant administrator responsible for CASH-IRE.

Following the interviews with members of the hospital staff, an evaluation team member interviewed two CASH representatives. One of these representatives had been assigned to Hospital F prior to the onset of CASH-IRE and remained in that assignment through the second year of the experiment. The second representative, still assigned to Hospital F, took over in the third year of the experiment.

Chief Executive Officer

The chief executive officer, who had been at the hospital for 13 years, proved to be most cooperative in arranging meetings with various staff members, and in offering his own personal time as well.

The interview with the CEO began with an exploration of his attitudes toward operating costs, levels of efficiency and effectiveness, and the applicability of industrial engineering, both in his hospital and in the hospital industry as a whole. Efficiency and effectiveness were perceived, by the CEO, to be about what they should be at Hospital F, both at the onset of the experiment and at its completion. On the other hand, he described levels of efficiency and effectiveness as less than adequate in the industry as a whole. He corroborated these perceptions with references to Hospital Administrative Services (HAS) reports, which placed Hospital F in the lower quartile for most cost indicators, when compared with hospitals of similar size — particularly other teaching hospitals. (Note the interviewee's confusion in corroborating his reference to efficiency and effectiveness with cost data.) The interviewee stressed that the effective application of industrial engineering methods to hospitals could have a very significant impact in decreasing operating costs in most of them.

In response to probing related to the potential impact of the application of the CASH Labor Performance Control program on hospital operating costs, the interviewee expounded upon his perceptions of CASH, its programs, the role of its representative, and, generally, on the relationship of his hospital to CASH during the experiment.

The CEO reported that he was among the original CASH promoters and that Hospital F was one of the original hospitals participating in pre-CASH-IRE programs. Several hospital departments, he noted, had been involved in these various programs. However, when queried about the extent of involvement, he could cite only the Nursing Department as having actively participated.

The CEO stated that the concepts on which the CASH program were based were quite excellent and reaffirmed that he had been a staunch supporter of the CASH organization prior to and since its inception. He said that discontent with the program focused, principally, upon the methods and procedures employed in development of standards. According to the CEO, "The standards are not tailored. . . . CASH was never really involved in analyzing each section [of the hospital] as it ought to be." The interviewee said he believed that standards were developed irrespective of interhospital variation in layout, levels of quality of care, methods of task allocation, and the philosophy of patient care.

The CASH representative who serviced the hospital during most of the experiment was also discussed during the interview. The discussion focused on his lack of availability and lack of contribution. The CEO commented, "I'm sure that CASH has both good and bad representatives. . . . We had one very poor individual, and, subsequently, we had a good one." He reported that complaints about standards in several departments were brought to the attention of the first CASH representative but that little or no satisfaction was received until the so-called "good" representative was assigned to the hospital.

The CEO emphasized that, despite his comments, he was not anti-CASH and that the hospital

industry needed concepts of the type employed by CASH. He added that, in retrospect, he believed that he should have approached the employees with an offer to share whatever incentives the hospital might have earned during the life of the experiment.

Returning to the structured portion of the interview, the interviewee stated that he perceived the motivational effect of the financial incentive as very significant. He said he was very much affected by the financial incentive and suspected that other participating hospital administrators would have been similarly affected.

The CEO estimated that less than one per cent of his time was involved with CASH-IRE. Line responsibility for operational aspects of the experiment had been delegated to the assistant administrator responsible for the LPC program, and responsibility for the data submission and record-keeping aspects of the experiment had been delegated to the assistant administrator for finance. The CEO was unable to indicate or estimate the amount of time spent by these two assistant administrators in their respective CASH-IRE responsibilities. While the CEO perceived himself as maintaining ultimate line responsibility for CASH-IRE, he was unable to describe definitive programs and/or actions initiated by himself or by his immediate subordinates vis-à-vis the experiment. (It should be noted that neither hospital-wide programs to maximize financial incentive earned nor directives requesting that specific departments strive to improve their performance index were initiated.)

The CEO was asked to comment upon his perception of the performance of a number of departments, as measured by CASH indicators. General inadequacy of the CASH standards, a declining bed occupancy, and the addition of a critical care unit were the explanations provided for the *Nursing Department's* declining performance index over the life of the experiment. The CEO did not know whether CASH had been notified of the change in intensity of care in a number of the beds within the hospital or whether required standard hour allocations had been modified accordingly. The interviewee said he thought that, both at the onset of CASH-IRE and at the time of the interview, the Nursing Department was generally operating at a satisfactory level of efficiency. Even so, he indicated that there was always margin for improvement.

The explanation offered for the *Radiology Department's* varying and low performance index was similarly vague. The interviewee was unable to account for the significant 15 percentage point improvement in performance index, from the first to second incentive year, and was similarly unable to account for a five percentage point decline in the third incentive year. He stated, "At this institution, we are interested in improving health, and if patients need care, they can come in and get it when they need it." The Radiology Department was perceived as functioning at a satisfactory level of efficiency.

The interviewee said, "I cannot understand the *Medical Record Department's* consistently low, and slightly declining, performance index." He reported that the quality of the department's operation and of the medical records it handled was excellent and that the low performance index was probably a reflection of the standards established for this department.

Inadequacy of standards was similarly offered as an explanation for the 50 to 52 per cent performance index of the *Admitting Department.* The CEO stated, "We do a lot more in Admitting here. . . . We take the attitude that the patient shouldn't wait more than 15 to 20 minutes to get in bed." He perceived this department as also performing at a satisfactory level and providing high quality service.

At the close of the interview, the CEO reiterated his strong support of the concepts upon which the CASH organization and its programs were based. He summarized his observations of individual departmental performance, saying that "the variation [in performance index] is a function of the standards, rather than of the quality of management."

Assistant Administrator for Finance

This assistant administrator, who had held his position as chief financial officer for nine years, was a highly regarded hospital financial manager. At Hospital F, his responsibilities included accounting, business office, and admitting office functions. With respect to CASH-IRE, his responsibilities included compilation and submission of data required, on a monthly basis, for the LPC program and the review and analysis of annual incentive year close-out reports, in addition to his line responsibilities for the project. As a result of these broad responsibilities, this individual was very much aware of the hospital's involvement in the experiment from its onset and of its progress through the three years.

Attitudes of this individual were solicited regarding hospital operating costs, levels of efficiency, and applicability of industrial engineering techniques to hospitals, the applicability and impact of the CASH LPC program, and the motivational effect of the financial incentive of the CASH-IRE on both Hospital F and the hospital industry. This individual indicated that he thought operating costs were higher than they should be, both in Hospital F and in the industry in general; however, he said he thought costs in Hospital F were more reasonable than those in the industry. Corroboration of this perception was offered in the form of Blue Cross and HAS reports, which placed this hospital in the more favorable quartiles when it was compared with other hospitals of comparable size and scope of services. The relationship of efficiency to cost was thought to be less than adequate in both Hospital F and the hospital industry. The hospital's decline in occupancy, expansion of bed complement, and earthquake damage were seen by this assistant administrator as contributing to the decline in efficiency, as measured by the performance index, during the experiment. Emphasizing the word "effective," the interviewee said he felt that the effective application of industrial engineering techniques could significantly decrease operating costs in both Hospital F and the hospital industry. The LPC program was *not* seen as having been effectively applied at the hospital; hence, the program was perceived as having little or no effect on containing or reducing operating costs. The hospital's failure to employ the LPC program effectively was attributed, in large measure, to the program itself. With respect to the financial incentive, the interviewee did not perceive it to be a strong motivator in this institution. He commented that "good patient care is the prime motivator in this institution." He added that "in the budget process, during the last three years, budget items were examined and reviewed on the basis of patient needs, and there was little discussion, if any, of financial incentives."

A digression by the interviewee to criticize CASH standards reflected some confusion with respect to their origin and development, as well as a lack of awareness of the provision for adjusting standards, when appropriate. With respect to the former, the assistant administrator commented that the standards for patient accounting were developed prior to the institution of the Medicare and Medi-Cal programs. As a result, the cost center was not given the proper required standard hour credit for these functions.

(It should be noted here that, while the form used in developing standards for a given cost center listed most tasks and activities performed, blank space was also provided for writing in tasks or activities not listed — including Medicare- and Medi-Cal-associated tasks.)

The interviewee also mentioned the fact that areas for which he was responsible were required to perform new activities associated with Medicare, Medi-Cal, and the Economic Stabilization Program, during the life of the experiment. He indicated that standard hours should have been allocated for these activities, but they were not. In response to probing in this area, the assistant administrator revealed a lack of awareness of the CASH representative's availability to make standard changes. The interviewee reported that, at the completion of each experimental year, required data were submitted, together with a cover letter, in which mention was made of the necessity for adjusting standards in several cost centers, including the financial cost center.

Explanations for the performance of a number of individual departments were sought from the interviewee. The hospital's bed expansion and, specifically, the expansion of the critical care unit were offered as possible explanations for the performance of the *Nursing Department.* It was reported that attempts to reduce staffing in this department, particularly on the surgical floors, were met with resistance from physicians. The only explanation offered for the performance of the *Radiology Department* was that a special procedures room had been opened under the auspices of this department in mid-1971. No explanation was offered for the performance of the *Medical Record Department.* The *Admitting Department* was described as atypical in comparison to admitting departments in other hospitals. It was stated that, in addition to the normal admitting function, this department was responsible for the operation of the information desk and a messenger service. It was thought that, perhaps, the CASH standards did not account for this. One interesting comment, with respect to this department, was that "the CASH representative did not like our admitting service. . . . He tried to run it, rather than give management tools." The reference here is to the first CASH representative; his successor was considered to be an improvement.

During this interview, frequent references were made to the budget system. It was characterized as the hospital's principal resource control mechanism. The budget system was reported to have incorporated aspects of the CASH methods of control. In probing to find out what methods were

incorporated, the interviewer learned that the CASH formula for computing the required nursing hours per patient days was employed. Mention was made of the use of CASH methods for determining staffing requirements for other departments, on the basis of varying levels of demand for service. The Housekeeping Department was cited as an example. In that department, determination of the need for additional personnel to maintain the expanded physical plant was based on CASH data. In the case of the Housekeeping Department, the hospital approached CASH, requesting an opinion on how many additional full-time equivalent personnel would be required to handle the additional space. While it was apparent that CASH was variously used in determining the relationship between demand for service and required personnel, it was clear that the LPC program was not used by this administrator or his subordinates on a regular, ongoing basis to control costs.

In closing, the interviewee stated that he agreed, conceptually, with the theory of CASH 1,000 per cent. He stated, "It is not their fault they are spread so thin. . . . Maybe each hospital should have an industrial engineer to work with CASH. . . . Our administrative staff hasn't had adequate time to work with the program." He also stated, "CASH has the tools if the hospital will take the time to use them."

Hospital Personnel by Functional Department

Director of Nursing Service

The director of nursing service and a medical nursing supervisor participated in this interview. At the time of interview, the director of nursing service had held that position for approximately one year. For the two years preceding, she had held the positions of acting director, supervisor, and staff nurse. When interviewed, the medical nursing supervisor had been with the hospital for one year.

[INTERVIEWER'S NOTE: The following information has been inserted to provide some perspective on the nature and content of this and succeeding interviews. Throughout the interview, consistent and concerted attempts were made by the interviewer to conduct a structured interview and to follow the format established. Despite these efforts, however, both nursing staff members interviewed constantly digressed and, although very polite and helpful, for the most part failed to respond directly to the questions posed. (It should be noted that the same problems were encountered in some of the other interviews.) The interviewer attributed this problem, in part, to a lack of understanding of the CASH program and, more importantly, to the department's practice of employing the hospital budget system as the primary means of controlling labor resources. A further explanation follows.]

Interviewees reported that they were aware that Hospital F had participated in CASH programs prior to the onset of the experiment. Since their employment at the hospital post-dated the onset of CASH-IRE, their information regarding the extent of involvement was highly impressionistic. Prior to her employment at Hospital F, the director of nursing service had been employed at a hospital which she described as actively participating in the CASH programs. She stated that, as CASH developed nursing programs, the nursing department in her previous hospital participated in orientation sessions, carried out necessary studies, submitted required data, and sought to improve its performance. It was her impression that Hospital F had, similarly, been more or less actively participating in CASH programs. The director further stated that a research nurse had been employed to conduct time studies to determine whether CASH standards were applicable to Hospital F. On the basis of these studies, the required hours per patient days were established for various units within the hospital. These standards, in turn, were incorporated into the budget process at the hospital. This foregoing information, together with comments made throughout the interview, indicated that the primary, if not the exclusive, control feedback mechanism for determining proper nurse staffing at Hospital F was the budget system. It was clear that, as long as the department remained within the established budget, it was perceived as functioning at an acceptable level of efficiency. With the exception of later phases of the experiment — when occupancy dropped — the department generally operated within budget allocations. It was reported that neither the CASH program nor its reports or data were used on an ongoing basis. However, reports were examined, from time to time, when it was necessary to make payroll and employee projections for budget purposes. The interviewees commented that awareness and understanding of CASH programs had not filtered down below the nursing supervisor level.

Questions regarding the relative efficiency and cost effectiveness of the Nursing Department during the three-year life of the experiment did not produce direct responses. Rather, the director of nursing service identified three factors that constrained her

from improving the nursing hours per patient day. She stated, first, that the department was, at that time, functioning as a messenger service in a number of areas and that, at her request, the CASH representative had undertaken a study to determine the extent of this activity. Second, transportation and communication systems constrained improvement. It was alleged that the lack of an operable intercom system, together with the lack of pneumatic tube and dumbwaiter systems, required the department to maintain additional personnel. The third constraint, the interviewee stated, was the need to create a nursing unit for high-dependency patients. The director of nursing service perceived nurse staffing to be proper at that time and stated that reductions in staff could be made only if the aforementioned constraints were eliminated. This portion of the interview concluded with the director's comment, "I am interested in proper staffing; however, my primary responsibility is quality of care."

The interviewees were able to provide only one possible explanation for the department's declining performance index during the life of the experiment — that of declining occupancy.[2]

Director of Medical Records

The director of medical records had held that position for two and one-half years at the time of the interview. She had been employed in the department three months prior to assuming the directorship.

The interviewee exhibited familiarity with CASH, its programs and reports. However, she was not aware that Hospital F was participating in an experiment nor that it had participated in previous CASH programs.

During the course of this interview, the director of medical records gave tangential and indirect responses to questions regarding her perception of operating costs, level of efficiency, applicability of industrial engineering techniques, and the potential impact on medical record departments of the effective application of CASH programs. Responding to a question regarding the reasonableness of operating costs, the interviewee said that, when she assumed the responsibilities of director, the department did not have adequate equipment and supplies. She further stated that, at that same time, she became aware that staff personnel were working overtime and not being paid for it. These situations had been remedied. Supplies and equipment had been obtained and the practice of not paying for overtime had been discontinued, she said. (It is noted that providing adequate equipment and supplies and paying employees for overtime would have increased operating costs.) Inquiries about the level of efficiency brought the comment, "Efficiency, morale, and everything were not up to par when I took over. It is better now." She added, "But I don't see any improvements in their [CASH's] stupid graphs."

In response to further probing related to the LPC program, the interviewee commented that only recently had the program been fully explained. She stated that, if the department were properly measured, the data could help in its operation. However, she stated that updating the base data would be required. The interviewee also stated that, initially, the consistent low performance index of the department was very discouraging and that it became difficult to continue to ask people to work harder. She said these data were not then being used and that the hospital administration did not criticize the department's low performance index. Further probing brought out the fact that, in early 1973, the assistant administrator responded to a request for additional medical record personnel by suggesting that CASH do a survey in that department. It was reported, however, that CASH requested a fee thought to be exorbitant and that the study was never conducted. Moreover, no new personnel were added to the department.

An explanation of the department's consistently low and declining performance index was sought. The response was, "We need more, not fewer people." In this regard, it was reported that the department had assumed additional responsibilities since the onset of the experiment. Examples given were, primarily, related to medical staff audit and review committee functions. (It should be noted, however, that, according to actual hour figures, approximately one full-time equivalent employee had been added over the life of the experiment. According to the director of medical records, this addition was a coding clerk.)

Comments throughout the interview gave the impression that this department, as did others, relied principally on guidelines established by the budget process for controlling resource allocations.

[2] Declining occupancy does not satisfactorily explain the fact that, during the second incentive year, the census of the hospital was 119,991 and the performance index 79 per cent, whereas in the third incentive year the census rose to 120,960 and the performance index declined to 78 per cent.

Chief Technologist/Chief Administrative Technologist

The Radiology Department, which was divided into four sections — diagnostic radiology, therapeutic radiology, nuclear medicine, and special procedures — was the responsibility of the chief radiologist. Reporting to the chief radiologist were the chief technologist and the chief administrative technologist, both of whom were interviewed in this evaluation. The chief technologist had been with the institution for a total of 12 years; the chief administrative technologist had been with it for 30 years.

The chief administrative technologist, who was responsible for the administrative aspects of the department (including the budget and CASH-IRE) was the principal contributor during the interview. The chief technologist commented very little and seemed to have only vague knowledge of the CASH program.

While the administrative technologist was aware that the hospital had been involved with CASH prior to the experiment, he indicated that the Radiology Department had not. At the time of the interview, he was not aware that the experiment was an incentive reimbursement experiment.

Despite the interviewer's attempt to conduct a structured interview, the interviewees consistently responded to specific questions with direct or indirect references to the CASH program's inapplicability to the operation of their own department. Among the explanations offered for this inapplicability was that their patients were more difficult. He stated that the CASH program was based on examinations and did not take into consideration the difficulty or type of patient. Moreover, he said it did not take into account the number of views involved in a given procedure. Some hospitals, he pointed out, include more views, others fewer views.

(It is interesting to note that the administrative technologist pulled his CASH file to prove his point that CASH did not account for the number of views per procedure. With some embarrassment, he noted that CASH's Statistical Data Record forms, to which he referred, did have a place for tallying both the number of patients and the number of views for each procedure listed. The form was also divided into sections for tallying regular patients and maximum-difficulty patients.)

In response to probing for an explanation of the department's variable performance index over the life of the experiment, interviewees were unable to provide an explanation, except to speculate that there had been a change in the mix of patients.[3] The administrative technologist also said that the CASH program failed to get an accurate count of procedures performed in the department; moreover, a simple tally of procedures was not adequate to determine the efficiency of the operation of the department.[4] The administrative technologist did seem to have an appreciation of the fact that a change both in the mix of patients and in procedures could affect standards over time. It was apparent, however, that concerted effort had not been made to bring these changes to the attention of the CASH representative.

In direct response to a probe regarding methods employed to determine the appropriateness of labor resource allocations, the interviewer learned that the CASH data were not used at all in the Radiology Department. Rather, the number of personnel required for the budget year was based on a projection of the number of weighted procedures (relative value scale of the California Medical Association). The resulting personnel requirements were incorporated in the budget.

Interviewees indicated that they had been called upon to offer explanations for the department's relatively low performance index. As a result, separate performance indices were being computed for each of the four sections comprising the department. The comment was made that the diagnostic section pulled the weight for the entire department, and particularly for the therapeutic section, which had a tendency to bring down the department's overall performance index. The staffing of the department had not been modified as a result of the computing and reviewing the separate performance indices. When probed further, the interviewees stated that inquiries from administration about appropriateness of staffing levels were based, primarily, if not exclusively, on budget figures; rarely was the CASH performance index mentioned.

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[3] This is a valid criticism of the CASH program. In developing standards, the difficulty of patients is considered. However, unless the hospital initiates a review of the mix of patients and unless standards are adjusted accordingly, the standard hours required figure employed by CASH may be less than accurate. CASH does encourage participating hospitals to notify their representative of significant changes.

[4] This also is a valid criticism, in that, if a significant change in mix of procedures occurs, standards should be adjusted. The Labor Performance Control program only examines specific procedures at the time that standards are established. CASH does encourage participating hospitals to notify their representative when significant changes occur.

Chief of Admitting

The scheduled interview with the chief of admitting was conducted under very unfavorable circumstances. It took place in an open office, surrounded by open admission cubicles, during the peak admitting hour. As a result, the interview was quite hurried and somewhat superficial. However, the information garnered did portray a situation similar to that found in other departments in which interviews were conducted.

The interviewee was aware that the hospital was participating in an experiment. However, she did not know a financial incentive was involved.

The interviewee stated that, when she learned that the initial performance index of the department for the base year of the experiment had been computed at 51 per cent, she assumed that "the figures were incorrect. . . . The survey obviously was not done properly." Her explanation was that her staff had not accurately tabulated all of the various activities they performed during the initial 28-day survey, upon which standards were based. She said she believed that the last week of the 28-day period had been particularly problematic, in that her staff had shown signs of fatigue from tabulating their activities. Further, she said, it had been a particularly busy period. The interviewee stated that the department's initial and continuing low performance index had been discussed from time to time with her immediate superior, the assistant administrator for finance. The joint conclusion reached by the interviewee and her superior, she reported, was that the department needed to be reevaluated. The interviewee stated that, in recent months, such an evaluation had been begun by the CASH representative. In response to questions concerning why such a reevaluation had not been initiated earlier, the chief of admitting gave answers such as "the CASH representative did not stop by" or "the CASH representative did not follow through."

The salient point made by the interviewee, and reiterated throughout the interview, was that the computed performance index was not reflective of the level of efficiency in the department. This explanation differed from others, in that the standards were criticized on the basis of inaccurate initial survey data. Consistent with the responses of the other department heads, responses of the chief of admitting made it clear that the budget was the principal means of controlling labor resource allocations.

(It is of interest to note that, as indicated, there was an effort under way at the time to resurvey the department, in order to determine what was hoped would be an accurate performance index, even though CASH data were not used on any ongoing basis. Among the concluding remarks of the interviewee was the question, "Am I under the CASH program now?")

Assistant Administrator Responsible for CASH-IRE

This assistant administrator was not available for an interview at the time the other interviews were conducted. As a result, he was interviewed some two weeks later.

At the time this interview was conducted, the interviewee had just been appointed administrator of Hospital F, after serving as assistant administrator for seven years. The responsibilities of this individual during the life of the experiment included: all general services, personnel, surgery, mental health, rehabilitation, clinics, emergency room, and radiology. It should be noted that there was some discrepancy between the respective perceptions of the CEO and the interviewee with regard to responsibilities for the CASH program. As already mentioned, the CEO stated that this assistant administrator had day-to-day responsibility for the CASH program; the assistant administrator preferred to say that the responsibility for the CASH program was shared by the CEO, the assistant administrator for finance, and himself.

In addition to asking the standard set of questions used in the interview, the interviewer seized the opportunity to make additional probes and to obtain clarification of impressions gained in earlier interviews.

In response to an inquiry regarding the reasonableness of operating costs at Hospital F, the interviewee gave a response identical to those of his colleagues, i.e., costs at Hospital F were lower than those at other hospitals, as verified by the various surveys that placed it in the lower operating cost quartiles. In general, he described the level of efficiency at Hospital F, and in the hospital industry in general, as less than adequate. The interviewee stated, "There is always room for marked improvement."

Questions regarding the effect that an effective application of industrial engineering methods in general and the LPC program in particular would have on operating costs prompted a rather lengthy

discussion. The discussion centered on the use of CASH versus an in-house industrial engineer and included a commentary on the hospital's experience with CASH. The interviewee stated that effective application of industrial engineering methodology in hospitals could reduce costs. However, his strong preference for the use of these methods would be through an in-house industrial engineer, employed by the hospital. The interviewee stated that, given the cost of employing an industrial engineer versus the cost of subscribing to CASH, Hospital F chose the latter. He questioned whether the effective employment of CASH methodologies could actually reduce costs at this hospital. In explanation, he said that there were some services in the hospital that presented special problems in applying industrial engineering techniques. These sections, he pointed out, represented major portions of total operating costs. "The hospital administration," he said "is caught between the medical staff and nursing and must yield to their wishes on staffing of these areas. . . . It is not impossible to make improvement, but it would be very difficult."

Returning to comments on CASH, he stated that it had been helpful in providing guidelines and in setting parameters for deploying staff resources. However, "CASH representatives must spend more time in the hospital for it to work. . . . Maybe we don't utilize it [CASH] as much as we should. . . . The biggest question on CASH is their not giving enough attention to individual hospitals."

The interviewee went on to say that, after the hospital's original orientation to CASH-IRE, the CASH representative worked with department heads on an individual basis, through his office. The interviewee stated that CASH had instructed the hospital to notify it of any changes that might affect the outcome of the experiment. He commented that he was quite certain that all such changes were not reported.

The interviewee stated that he regularly reviewed LPC reports. He stated further that there were a number of cost centers with low performance indices that became a concern of the administration. Included among these centers were: medical records, admitting, personnel, emergency room, and central supply room. He added that the Nursing Department worked on a regular basis with the CASH representative. Moreover, two indepth studies were conducted in the laundry and in the emergency room. With respect to the low-performing cost centers, the interviewee indicated that a number of changes in department heads were made during the life of the experiment. He added that the indepth studies in the laundry and the emergency room were quite excellent but that the recommendations were never implemented.

The interviewee was asked to provide comment on, and explanation for, the performance of several specific departments. He was given the data included as Tables 2 to 5 in this document. He explained that the 58 per cent performance index in the Radiology Department during the first incentive year resulted from the completion of the new diagnostic and treatment center. He stated that the move from the old location to the new one, together with the staff expansion necessary to accommodate the increased demand for service, accounted for the low performance index during the first year. The improvement to 73 per cent during the second year of the experiment was explained by the fact that the move had been completed and operational problems resolved. The interviewee was unable to offer an explanation for the drop in performance index to 68 per cent during the third incentive year.

The interviewee indicated that the administrator became so concerned over the low performance of the *Medical Record Department* that the department head was replaced. The general impression of the interviewee was that this department's improved performance was offset by an expansion of services that was not reported to CASH and, hence, was not accounted for. The expansion mentioned included the addition of a new transcription service during the second year of the experiment, the addition of one to two full-time equivalent employees to staff the various medical and surgical committees of the medical staffs, and the increasing demands associated with discharge activities and with requirements of various third parties and of the medical staff.

The interviewee stated that the *Admitting Department* was not among his responsibilities; hence, he could offer no explanation for its consistently low performance. He did indicate, however, that a change in department heads had been made some time during the second incentive year.

An explanation for the declining performance index of the *Nursing Department* was not readily available. Reference was made to the opening of a concentrated care unit, to problems deriving from the February 9, 1971, earthquake and to general difficulties growing out of resistance by the medical and nursing staffs to administrative pressure to reduce nurse staffing.

In response to a specific probe regarding the relationship of the CASH representative to various individuals within the hospital, the interviewee offered some insights, which, in effect, were a commentary on the manner in which the CASH program was employed by the hospital. The interviewee stated that he had a good relationship with the initial CASH representative. He stated further, however, that this individual had quite an abrasive relationship with some, if not most, of the hospital department heads. The department heads perceived this CASH representative as of little or no help. He was characterized as someone who did not listen, and, as a result, they got "turned off." In contrast, the present representative was described as one who listened and one thought to be helpful by the department heads.

As indicated, there were a number of departments with low performance indices. At the request of the assistant administrator, the CASH representative discussed with these department heads methods of improving their performance index. The interviewee stated that, because of the CASH representative's attitude and the manner in which he conducted himself, these contacts invariably failed to have a positive effect on the performance index of these departments. Because of the way in which the department heads perceived the CASH representative, his recommendations were considered unworthy, were quickly dismissed, and were never put into effect.

The interviewee summarized the hospital's involvement with the CASH program by saying that each month he would review the overall hospital report and individual departmental LPC reports and forward the latter to each department head. For low-performing departments, a memo was attached, suggesting that the department head see either the interviewee or the assistant administrator for finance or that he call the CASH representative directly. Regardless of which of these communication linkages was made, the department head would ultimately work with the CASH representative on an individual basis. Department heads perceived the CASH representative as dictating to them what they should be doing. Their reaction was, "Who is he to tell me what I should be doing?" and they quickly dismissed the recommendations made.

The interviewee was asked to comment upon the principal means by which the hospital determined and controlled deployment and use of its labor resources and to what extent the CASH program and/or its data were employed in this control effort. The interviewee corroborated the observations made during earlier interviews. He stated that the principal tool for controlling resource allocation was the hospital's budget. He further stated that, to some extent, CASH data have been employed in developing the budget process, particularly in determining the amount of staffing required at varying levels of demand for service within individual cost centers. He added that the administration of Hospital F relied very heavily, if not exclusively, on the budget for control of its human resources. Thus, during the life of the experiment, little attention was, in fact, paid to departments that displayed low performance indices. As long as the department was operating within its budget, efforts to encourage improved performance indices were minimal or nonexistent.

CASH Representatives

Two CASH representatives were assigned to Hospital F during the experiment. The first maintained responsibility for Hospital F from the onset of the experiment through the end of the second incentive year. At this point, the second representative assumed liaison responsibility and continues to serve this hospital. Both of these individuals were interviewed. A summary of these interviews follows.

First Representative

In response to an inquiry regarding the manner in which the experiment was received at Hospital F, the first CASH representative described a set of unique circumstances, which he believed, in effect, forced an enthusiastic reception of the experiment. He stated that, at the time Hospital F was announced as having been selected to participate, the CEO was attending a hospital conference sponsored by the religious group with which the hospital was affiliated. The representative learned that the conferees enthusiastically expressed the feeling that Hospital F was most fortunate to have been selected to participate in this unusual experiment, thus forcing the CEO to respond enthusiastically.

During the interview, this CASH representative pointed out that, at this particular hospital, a full report and analysis of the data gathering procedures, adequacy of standards, and so forth had been written by him and feedback provided to department heads. He reported that it was not until receipt of his report that hospital personnel, particularly department heads, fully understood the LPC program. He added that complete feed-

back was not received until eight or ten months into the experiment; hence, the hospital could not be considered as a fully active participant in the experiment, or a user of the LPC program, prior to that time.

The CASH representative was asked to identify unusual factors that might have affected Hospital F's experience during the experiment. He was specifically asked to comment on possible effects of the earthquake. He commented that he did not feel that the earthquake had a significant impact on the operation of the hospital. He mentioned that several new services had been added during the experiment but that standards had been properly adjusted to account for them. The only factor that he perceived as possibly having a significant influence on the hospital experience was the attitude of the hospital medical staff. The representative stated that this was an unusually powerful group, which had a tradition of "getting what it wants." It was implied that there may have been a reluctance on the part of the administration to promote other than technological change because of a real or imagined potential negative reaction by the medical staff.

The CASH representative stated that the CEO tended to be a paternal leader who considered employees as members of the hospital family. While the CASH representative described the CEO as a person capable of making good business decisions, he pointed out that, all too frequently, these decisions were rescinded when the CEO was confronted by unhappy department heads. The CEO was further described as having "a keen sense of how to get along with people." It was implied that the CEO was, primarily, concerned with maintaining a satisfied and happy work force and medical staff.

With respect to the experiment, the representative said that his contact with the CEO was fairly limited. He described the CEO as cooperative and overtly receptive to the experiment. He pointed out, however, that the CEO "said all the right things but didn't follow through."

According to the CASH representative, an assistant hospital administrator had been assigned responsibility for the LPC program. This individual was the CASH representative's principal hospital contact. The representative explained that this assistant administrator assumed his responsibility shortly before the onset of the experiment. Moreover, he had had no prior hospital experience, having previously been a principal in a school sponsored by the same church that sponsored the hospital. The CASH representative described the assistant administrator as interested in the experiment and wanting to help improve the hospital's labor productivity. At times, however, he was ineffective, owing, in part, to his lack of hospital experience.

The representative stated that decisions and plans aimed at improving productivity for individual departments, as well as for the overall hospital, were made with the assistant administrator. When asked to specify areas in which such attempts were made, the representative could identify only the Nursing Department. The representative described the director of nursing service as somewhat resistant to the LPC program and described a powerful group of nursing supervisors as totally resistant to the program. The representative and the assistant administrator held numerous meetings with these individuals. Moreover, visits were arranged in at least two hospitals so that nursing personnel could see institutions in which the LPC program was being utilized effectively. The director of nursing service was reported to have yielded somewhat. However, the nursing supervisors remained totally resistant. The director of nursing service and the supervisors had direct access to the CEO and gained his support. As a result, no effective action was ever taken in the Nursing Department.

The CASH representative stated that, in other than the Nursing Department, the assistant administrator's role was limited to initiating and overseeing the updating of standards for individual departments. The representative added that "I may have been, in part, responsible for the lack of activity; I didn't push too hard. . . . I felt it would only stir up the pot and no action would be taken."

The representative was asked to comment on the receptivity, the attitudes, and the general grasp of the LPC and IRE among department heads at Hospital F. He stated, "I never met a department head at this hospital that was anything but pleasant. . . . They are good people who mean well." With respect to competence, he explained that hospital policy required that only members of the faith of the sponsoring religion could assume managerial roles. He pointed out that maybe the faith did not have enough talent to run all of its hospitals and, as a result, ended up with well-meaning, good-hearted department heads — many of whom were managerially incompetent. He stated that some areas, including finance, nursing, dietary, housekeeping, central supply, and emergency room, did have competent department heads and were well supervised.

The representative implied that the less competent department heads may not have fully understood the LPC program and were, perhaps, threatened by it. Competent department heads were described as being receptive to the program and as having a more than satisfactory level of understanding of it. The representative generally characterized department heads as having done "nothing with the LPC data except request standards changes so that they would look better."

The interviewee was asked to comment on the performance of the four departments selected for indepth data gathering and review. Regarding the *Nursing Department*, the representative referred to his earlier comments. In examining performance figures for this department, he indicated no surprise, relating the decline in performance index to a generally declining census and to a nursing department that, more or less constantly, demanded additional personnel. The representative stated that, despite his having spent a good deal of time in analyzing the *Admitting Department* and in making recommendations, nothing had been accomplished. He stated that, in his opinion, "the director of this department was incompetent." The representative reported that a consultant had been called in to examine the organization and performance of the *Medical Record Department*. He indicated that recommendations of the consultant were generally followed but that they did not include staffing changes that would have improved the labor productivity of the department. The representative could provide no explanation for the performance of the *Radiology Department*. He stated that in his opinion the CEO was generally reluctant to confront physician department heads; hence, he had paid little attention to this area or to other professional areas.

The interviewee was asked to respond to a series of specific questions regarding the experiment. He stated that standards for Hospital F were as good as anywhere but that acceptance of the standards at the departmental level was poorer than in most other hospitals with which he dealt. He stated that the LPC program and its data were not used at all at the department head level but added that it may have been used by the administration as leverage when requests for additional personnel were made by the departments. The financial incentive was not perceived as a motivator to improve productivity in this hospital. The representative stated that the hospital's financial position was quite secure; the hospital was not in need of additional revenue sources. He stated that, while the CEO said he was motivated by the financial incentive, his actions indicated otherwise.

The representative was asked about the hospital's budget system. He commented that he had spent a good deal of time working with the financial officer of the institution in developing budgets. He stated that the CASH method of budgeting by standards had been employed but that the hospital used its own standards rather than those of CASH. In the representative's opinion, "this tended to perpetuate the status quo." He added that there was an acute awareness of the financial impact of decision making at the administrative level in this hospital but that, because of its secure financial position, increased cost effectiveness and improved labor productivity were not of primary concern.

Several times throughout the interview, the CASH representative made implicit and explicit reference to the nature of the operation of this hospital. The hospital was characterized as very traditional and financially well endowed. It was, in fact, described as analogous to a battleship that had been on a course for a number of years; the mission of the hospital leadership and staff was to maintain that course. The thrust was to provide high quality patient care and to maintain good and pleasant relationships with the hospital and medical staff. Generally, this resulted in an unwillingness on the part of the administration to confront hospital and medical staff members on cost-effectiveness and productivity issues that might prove to be disruptive or unpleasant.

Second Representative

Beginning the third incentive year of the experiment, a new CASH representative was assigned to Hospital F. An interview was conducted with him, in order to assess his perception of the hospital's involvement with the CASH-IRE prior to, and subsequent to, his assuming this responsibility in January 1972.

The second representative said he believed that the attitude of the CEO both at the onset and throughout the experiment was that it was his duty to participate because he had been asked to do so. In this representative's opinion the CEO did not know how to respond to the information provided by the LPC program reports. He was not demanding with his department heads, who were described as having been given a great deal of autonomy in operating in their areas of responsibility. Both the CEO and the department heads were described as

"very nice people . . . sincere . . . concerned with running a good hospital." The representative stated it was his understanding that, initially, the CEO would discuss the LPC reports with department heads, particularly those with low PI's, but that he never placed demands on them to take specific actions aimed at improving labor productivity. The representative stated further that the practice of reviewing reports and discussing them with department heads was subsequently dropped. He characterized the entire administration of the hospital as "not very strong."

The representative stated it was his impression that, prior to his arrival and certainly after his arrival, department heads had not generally accepted the CASH standards for their areas. He stated that this was particularly true of the professional departments.

The hospital staff was characterized as not being very financially oriented. Staff members seemed to be more concerned with quality of care, which they felt could only be improved by the addition of staff. It was stated that, generally, staff would be maintained whether there were "patients or not . . . and when occupancy dropped there was no parallel reduction in staff." As a result, the financial incentive was not seen as a motivator.

The CASH representative was asked for his perception of the relationship between his predecessor and the hospital's administrative staff members and department heads. He characterized the relationship as good, stating that his predecessor routinely supplied information and identified problem areas in the hospital for both the administration and department heads. However, he pointed out that "these people just didn't know how to react."

The representative indicated that some standard adjustments had been made to accommodate the increase in number of beds that occurred during the experiment. He indicated further that a request had been initiated by the hospital for standard adjustments related to damage caused by the earthquake. The representative said he had asked for an estimate of additional hours required in relation to the earthquake but had never received this information from the hospital administration.

In response to a query regarding the hospital's orientation to its budget rather than to the LPC program, the representative commented that he perceived the budget as being remarkably accurate, pointing out that "the figures submitted by the controller were extremely precise and, unlike in many hospitals, the monthly figures submitted totalled to the annual figures submitted." He stated that the management staff of the hospital was almost entirely oriented to the budget but indicated that the budget merely reflected department head wants, including those items and resources thought to be necessary to provide "high quality" service. Generally, this representative did not perceive the hospital as being financially oriented in a managerial sense.

The representative would offer no evidence of the hospital's having used the LPC program.

SUMMARY AND CONCLUSIONS

Summary

Hospital F began the experiment with a base-year performance index of 81 per cent. In each of the three succeeding years of the experiment, the PI declined; at the end of the third year, it was 78 per cent. The related gross total losses for this institution were $148,545 for the first incentive year, $37,285 for the second, and $5,801 for the third. The respective figures for experimental net total losses for these three years were $98,040, $24,846 and $3,856. In the first and second incentive years of the experiment, the hospital staffing pattern remained very stable, while patient days declined — the probable explanation for this hospital's decline in productivity. In the third year of the experiment, the hospital expanded its bed complement, and, while the census did rise, there was also a greater increase in actual hours relative to standard hours. The hospital's inability to staff in accord with variation in demand is the probable explanation for the third-year decline in labor productivity.

The CEO of Hospital F had been among the original promoters of the Commission for Administrative Services in Hospitals; Hospital F was one of the original CASH subscribers. Thus, both the administrative staff and some department heads had knowledge of the CASH organization and its industrial engineering approach to improving hospital productivity. Comments by the CEO and by the CASH representative, who had been with the hospital for at least two years prior to the onset of the experiment, indicated that Hospital F had been a limited participant in pre-experiment CASH programs. The representative had conducted detailed studies in the Housekeeping and Dietary Departments prior to CASH-IRE, but little, if any, action had been taken to improve labor productivity.

At the time of his interview, the CEO had been at Hospital F for 13 years. He perceived operating costs and levels of efficiency and effectiveness in the hospital industry as less than adequate; however, he perceived them as adequate in Hospital F. Corroboration of this perception was offered in the form of comparative reports, which placed Hospital F in more favorable quartiles when compared with other hospitals — particularly hospitals of comparable size and scope of services.

The CEO described himself as a staunch supporter of the CASH organization and a believer in the concepts on which its programs were based. However, he criticized CASH standards and the first CASH representative assigned to the hospital. He said he thought that standards had been developed irrespective of variation in hospital layout, in levels of patient care, in methods of task allocation, and in the philosophy of patient care. The CEO commented, "I'm sure that CASH has both good and bad representatives. . . . We had one very poor individual, and, subsequently, we had a good one." He explained that discontent with standards in several departments had been reported to the first CASH representative and that little satisfaction had been gained until the so-called "good" representative was assigned to the hospital.

The CEO described himself as highly motivated by the financial incentive; however, he was unable to describe definitive programs or actions initiated by himself, or by any of his immediate subordinates, that had been aimed at improving labor productivity.

(While both of the CASH representatives perceived the CEO as not taking leadership in encouraging improved labor productivity in Hospital F, they gave different explanations. The first representative described the CEO as a paternalistic leader who perceived his employees as family members. He was an individual capable of making good decisions but one who reneged when department heads "cried on his shoulder." The second representative indicated that he believed that the CEO did not know how to respond to the information provided by the LPC program reports. The CEO was described by both as a very nice person who gave his department heads a great deal of autonomy and never demanded that action be taken to improve labor productivity.)

Two assistant hospital administrators were interviewed. They shared the opinion of the CEO that operating costs and levels of efficiency and effectiveness were better in Hospital F than in the industry. They also corroborated their perceptions with references to comparative ranking reports. Each stated, however, that the hospital could improve even more. Further, each said he believed that the application of industrial engineering techniques could be effective.

According to the assistant administrator for finance, the LPC program was not used effectively primarily because the original standards were believed to be less than adequate and no provision had been made for adjusting them. (It should be noted here that there were provisions for standards changes and changes were, ordinarily, to be initiated by the hospital.) This assistant administrator perceived the financial incentive as having little or no motivating effect. He said, "Good patient care is the prime motivator in this institution."

The other assistant administrator interviewed was the hospital coordinator for the experiment. He had been named to his position as assistant administrator at about the time the experiment began and had had no previous hospital experience. (It is interesting to note that both the CEO and the CASH representative identified this individual as the one having day-to-day responsibility for the CASH program but that he believed the responsibility was shared with him by the CEO and the assistant administrator for finance.) The administrator responsible for the experiment stated that he had a good relationship with the first CASH representative but that the representative had little or no rapport with department heads. In fact, he reported, many of the department heads both resented and disliked the CASH representative. The assistant administrator said that the representative would attempt to assess departmental problems and make recommendations but that department heads would express their resentment and no action would be taken.

This first representative recalled that most of his attention was focused on the Nursing Department. In several instances, he reported, plans and decisions were made to take action to improve productivity in this department. However, support had not been received from the CEO. He suggested that some of the responsibility for the lack of action at this institution may have been his own. "I didn't push hard," he said, "but only because I felt it would only stir up the pot and no action would be taken." The representative stated that most of his contact with the assistant administrator responsible for the experiment revolved around responding to requests to upgrade standards.

Departmental Performance

Interviews with department heads, two CASH representatives, and the previously identified members of the administrative staff provided insight into, and understanding of, the level of awareness, understanding, and use of the LPC program at the department head level. Generally, levels of awareness and understanding among department heads were quite low. In seeking an explanation for the performance of selected departments, the interviewer found that the LPC program had not been effectively utilized and that most of the attention paid to it took the form of criticism of the standards. (In several cases, such criticism was based on erroneous assumptions of how standards were derived and how they might be utilized.) The hospital staff members interviewed seemed singularly unable to explain the performance of the selected departments in terms of labor productivity. Generally, department heads seemed to rely rather heavily on the budget as a guide to whether they were, in a managerial sense, operating efficiently and effectively. Reference to the LPC program was made in only those cases in which a low performance index was apparent; these references were, generally, limited to the inapplicability of the LPC program to this department or to the invalidity of the standards.

The *Nursing Department* began the experiment with a base-year performance index of 79 per cent, which declined in subsequent years, ending with a 73 per cent performance index. Neither the director of nursing service nor the nursing supervisor interviewed was able to explain the declining performance index. The director suggested that, given constraints existing at the time, the department was operating at an optimal level of productivity. She identified these constraints as: (1) the inadequacy of the transportation and communication systems in the hospital, (2) the department's need to operate a messenger service, and (3) the need for a specialized high-dependency patient unit. It was reported that neither the CASH program nor its reports or data were used on an ongoing basis. CASH data were used only when it was necessary to make payroll and staffing projections for budget purposes.

Members of the administrative staff offered various explanations for the Nursing Department's declining level of labor productivity. The CEO stated that it was, in part, owing to the inadequacy of the CASH standards. He added that declining occupancy and the addition of a critical care unit had been partly responsible. The assistant administrator responsible for CASH-IRE referred to the opening of the critical care unit as a possible explanation. (It should be noted here that adjustments in standards were made to account for the opening of this unit.) The assistant administrator for finance and one of the CASH representatives said that the mere suggestion of staff reductions met with resistance from nursing personnel, as well as from members of the medical staff. The administration of the hospital was apparently unwilling to confront this resistance.

The *Radiology Department* had a 59 per cent performance index in the base year of the experiment. In the three succeeding years, the index was 58 per cent, 73 per cent, and 68 per cent. The chief technologist and the chief administrative technologist were interviewed. The latter was a particularly vocal critic of the CASH programs and made frequent and, at times, erroneous criticisms of the CASH standards. His criticisms were that: the standard did not account for the fact that patients in Hospital F were more difficult and procedures were generally more complex, with more views provided. He produced a Statistical Data Record form used by CASH to collect base-line data to illustrate his criticism. This individual was embarrassed to find that the form provided for identifying specific procedures and maximum-difficulty patients, as well as for the number of patients and the number of exposures. The only valid criticism of the program offered was that, on an ongoing basis, the LPC program did not take into account the mix of patients and procedures. Other than speculating that there had been a change in the mix of patients and procedures, the technologists could offer no explanation for the low and variable performance of this department.

(It should be noted that the technologists had been called upon to provide an explanation for the department's less than adequate performance. However, these requests had been initiated on the basis of budget variance rather than on LPC figures. The LPC program was not used on any ongoing basis in this department.)

The CEO was unable to provide an explanation for the Radiology Department's performance during the three-year life of the experiment. He said, "We are interested in quality and do what is needed to provide quality service." The assistant administrators agreed that resolution of problems following the opening of a new special procedures room in mid-1971 may, in part, have explained the improved labor productivity in the second incentive year. The assistant administrator responsible

for CASH-IRE suggested that there had been some problem with the professional competence of the head radiologist and that the administration had been reluctant to take action to improve productivity until this problem was resolved. The CASH representatives had little contact with the Radiology Department.

The director of the *Medical Record Department*, who was interviewed, had been hired about the time the second incentive year began. Her predecessor had been terminated because she was an ineffective manager.

The new director of medical records did not appear to be managerially oriented either. In response to questions regarding her perceptions of operating costs, level of efficiency, and the applicability of industrial engineering techniques and their potential impact in the Medical Record Department, she said that, since she had assumed responsibility for the department, "the efficiency, morale, and everything had improved." She seemed to have little understanding of the LPC program and commented, "I don't see any improvements in their [CASH's] stupid graphs." Initially, the consistently low performance index of the department was reported to be very discouraging. An explanation for the low performance index was sought, at one time, by the administration. When told by the department head that the department was operating efficiently, the administration did not criticize the low performance index again.

The explanation provided for the department's consistently low and declining performance index — 57 per cent in the base year and 52 per cent in the third incentive year — was that more, not fewer, people were needed to operate the department. It was reported that the department had assumed additional medical-staff-related responsibilities since the onset of the experiment. These additional responsibilities were not, apparently, reported to the CASH representative nor was a request made for standards revision. The LPC program was not used in this department; the department head relied instead on budget guidelines to determine whether resource allocations were acceptable. The CEO's comment on the performance of the Medical Record Department was that the "quality is high. The low performance index is probably indicative of the inaccuracy of the standards." The assistant administrator in charge of CASH-IRE said he thought that some improvements had been made with the hiring of the new department head but that these improvements may have been obscured by expanded services. He mentioned, in particular, some medical-staff-related activities and the new transcription service that had been added.

The director of the *Admitting Department* was a particularly vocal critic of the CASH program. She seemed somewhat familiar with the LPC program but was unaware that the experiment had a financial incentive. She did not perceive standards as adequately accounting for the unique services offered by this department. Furthermore, she reported that, in the last week of the 28-day base period, data collection was inaccurate because of an excessive workload and staff fatigue. The department's low performance index was discussed by the director and her immediate superior several times during the experiment. They mutually concluded that there was a necessity for the department to be reevaluated. (The request for reevaluation was not initiated, however, until after the experiment had been completed.) The LPC program clearly had not been used by this department.

The director of the Admitting Department was unable to explain the hospital's performance indices throughout the experiment: 51 per cent in the base year, 50 per cent in the first and second incentive years, and 52 per cent in the third incentive year. The CEO commented that this department did more than others and that the standards must have been off. The assistant administrator for finance, who had line responsibility for this department, offered an explanation similar to that of the CEO. He added that "the CASH representative did not like our admitting service. . . . He tried to run it, rather than give management tools." The assistant administrator responsible for CASH-IRE could offer no explanation for this hospital's low performance.

Both CASH representatives made similar comments about department heads at Hospital F. One stated, "I never met a department head who was anything but pleasant. . . . They are good people who mean well." It was reported that only members of the religion with which the hospital was affiliated could serve as department heads. In one CASH representative's opinion, the faith could not supply enough talent to run all of its hospitals; hence, there were a number of incompetent department heads at Hospital F. The representative pointed out that there were a number of competent ones, but even these department heads "did nothing with the data, except to request that standards changes be made so they would look better." The other CASH representative indicated that "these people [department heads] just didn't know how to react."

Explanations for the hospital's overall performance in the experiment were offered by the CEO and members of the administrative staff. There was complete agreement that the 78-bed expansion and the hospital's decline in occupancy contributed to its decline in labor productivity. Two of the administrative staff members referred to the February 9, 1971 earthquake, believing it to have been a contributor to the hospital's decline in productivity. Another explanation offered by the CEO was the hospital's initial high performance index. (It should be remembered that the CEO recalled that the initial performance index was 90 per cent, rather than the 81 per cent calculated by CASH.)

Overall Performance

The CASH representatives offered their opinions on the hospital's overall performance. The representatives agreed that the hospital maintained a sound financial operation. They had not been motivated by the financial incentive to take any actions other than those that they had traditionally taken to accomplish the objectives of the institution. The institution was perceived as very traditional and concerned, wherever possible, with meeting the requests of the hospital and medical staffs for equipment, services, and personnel. Moreover, there was a general reluctance on the part of the hospital administration to confront department heads or to raise possible conflicts with members of the organized medical staff, even when the administration believed that requests were not entirely consistent with maintaining cost-effective operations.

It was most apparent in interviewing members of the administration, department heads, and the CASH representatives that Hospital F relied very heavily on its budget systems and procedures to control resource allocations. One CASH representative indicated that he had worked with the hospital administration to develop a budget based on standards but that the hospital used its own standards, rather than those of CASH. This representative perceived the use of the hospital's own standards as a tool in maintaining the status quo. It was clear that department heads did not use the LPC program on an ongoing basis; instead they concerned themselves with remaining within budget guidelines.

Conclusions

The preceding discussion, based on intensive interviews with hospital personnel and with CASH representatives and on a review of the experimental data, provided the rationale for the following conclusions related to Hospital F's participation in the Incentive Reimbursement Experiment.

1. The financial incentive of the CASH-IRE prompted no increase in motivation, for either the CEO or members of the hospital staff, to improve individual departmental or overall hospital productivity indices during the experiment.

2. For the most part, the LPC program and its data were not used by Hospital F. On occasion, however, the data may have been used by the hospital administration as leverage for refusing department head requests for additional personnel. The data may also have had some use in developing the hospital's budgeting system.

3. Improved labor productivity was, at best, a minor priority of the hospital administration. As long as the hospital remained reasonably sound financially, there was no concerted attempt to improve its labor productivity on a departmental basis, even in those several departments that displayed performance indices of 60 per cent or less.

Hospital F was one of several experimental hospitals in which the PI declined and an incentive loss was computed in each of the three years of the experiment. This is a hospital with a long and strong tradition of serving its community by providing high quality care and also of being a "workshop" for its attending medical staff. In this respect, Hospital F appears to be typical of most large, voluntary hospitals. It is unique, however, in that it was seemingly able to continue in this tradition because of its sound financial position. Unlike many of its counterparts, which have been forced to become more cost conscious because of financial constraints, Hospital F continues to meet the requests of physician and hospital staff members, avoiding, if possible, organizational conflict.

CASE STUDY: HOSPITAL M

INTRODUCTION

Hospital M is a nonprofit, community hospital, located in a large urban area.* At the time of its participation in the Incentive Reimbursement Experiment (IRE), conducted by the Commission for Administrative Services in Hospitals (CASH), the hospital had 96 beds and was providing a full range of services. Hospital M earned an incentive award in each of the three incentive years of the experiment, for a total of $30,547. (For the formula used to calculate gains [losses], refer to *Incentive Reimbursement Experiment*, Blue Cross of Southern California, 1973.)

Presentation of CASH-IRE

Presentation of the experiment generally followed the established format. CASH representatives described the experiment, in detail, to the chief executive officer (CEO), explaining the Labor Performance Control (LPC) program on which it was based. Subsequently, these representatives conducted an orientation session for department heads in order to explain the LPC program and the hospital's participation in the experiment. The medical staff was not informed about the experiment and, therefore, was not aware of the hospital's involvement in it.

Influencing Factors

Hospital M proved to be unique among participating hospitals in that no major factors were seen as having affected hospital operations over the life of the experiment. The CEO indicated that no major construction or renovation projects had been initiated or completed during this period. No changes had been made in ownership, scope of service, medical staff organization, or labor relations. The CEO said that, with the exception of the replacement of two diagnostic x-ray units, no major changes in equipment had been made or needed.

The only possible influencing factors were Hospital M's lack of prior involvement with the CASH organization and the hospital staff's general lack of

*In the sample of Southern California hospitals originally selected for participation in this experiment Hospital M was identified as a proprietary hospital. This identification was in error. Hospital M is a nonprofit institution, operated by a religious order.

Table 1. Total Hospital Summary Performance Indicators, by Incentive Experiment Years, and Computed Incentive Gains (Losses)

	First Year		Second Year		Third Year	
Item	*Base Year*	*Incentive Year*	*Previous Year*	*Incentive Year*	*Previous Year*	*Incentive Year*
Performance index*	73.55%	74.06%	74.07%	78.07%	78.07%	81.58%
Inpatient payroll*	$1,324,639	$1,287,945	$1,389,348	$1,313,117	$1,418,608	$1,347,491
Inpatient actual hours*	406,192	408,617	408,619	379,755	379,755	355,671
Inpatient standard hours*	298,774	302,607	302,667	296,462	296,462	290,145
Patient days	26,719	26,841	26,841	25,437	25,437	24,348
Occupancy	76%	77%	77%	73%	73%	70%

	First Year	Second Year	Third Year
Gross Savings (Loss)	$36,694	$76,231	$71,117
Total Incentive Gain (Loss)	$ 7,819	$32,898	$22,369
Net Total Award (Loss)	$ 3,769	$15,960	$10,818

**Previous year figures reflect adjustments related to wage differences or to changes in volume or standard hours.*

knowledge about industrial engineering techniques. Although one department — the Dietary Department — had, at one time, initiated an incentive plan, the plan had not been based on performance standards or industrial engineering techniques. It had been a "bonus" system that had involved sharing, annually, with the department head cost savings that resulted when projected budget costs exceeded actual costs.

At the time of the experiment, the CEO was familiar with industrial engineering techniques and applications. Even though department heads had not been familiar with CASH or with industrial engineering techniques, they had expressed generally negative attitudes about applying industrial engineering methods in hospitals. These attitudes seem to have been based more on the belief that industrial engineers were "efficiency experts" than on any general knowledge or experience.

Summary of Statistical Data

As shown in Table 1, Hospital M's overall performance index (PI) increased from 74 per cent in the base year to 82 per cent in the third incentive year. In the intervening years, it had recorded performance indices of 74 per cent and 78 per cent.

As also shown in Table 1, the hospital's patient days declined from 26,719 in the base year to 24,348 in the third incentive year. In only one year — the first incentive year — did patient days increase.

Selection as Interview Site

Hospital M was selected as an interview site because it had consistently improved its overall performance index despite a declining census. The selection of specific departments for indepth review was made on the basis of size and of change in labor performance. Five departments were selected for this special review. They were the:

- *Business Office*, which demonstrated a consistent increase in performance index from 86 per cent in the base year to 95 per cent in the third incentive year. This department included the accounts receivable, accounts payable, payroll, insurance, PBX, and admitting functions.
- *Inhalation Therapy Department*, which recorded a performance index of 75 per cent in the base year and 101 per cent in the third incentive year.
- *Medical Record Department*, which demonstrated a decline in performance index from 97 per cent in the base year to 79 per cent at the end of the third incentive year.
- *Nursing Department*, which recorded a 10 percentage point improvement in performance index over the life of the experiment — from 60 to 70 per cent.
- *Radiology Department*, which showed an increase in performance index from 85 per cent in the base year to 87 per cent in the first incentive year and then a decline to 66 per cent at the close of the experiment.

Tables 2 through 6 profile the performances of these departments.

Initial contact with Hospital M regarding the evaluation project was made by the assistant director of CASH. He explained to the CEO the purpose of the evaluation as well as its relation to the experiment. The CEO agreed to participate in the evaluation project and said that he would make hospital personnel available for interviews as requested. The assistant director of CASH also arranged for the evaluation team to interview the CASH representative assigned to Hospital M during the experiment.

After the initial contact, a member of the evaluation team contacted the CEO, identifying the individuals he wished to interview. The CEO responded that a number of personnel changes had been made but that every effort would be made to arrange interviews with individuals who had knowledge of the entire experiment.

EVALUATION INTERVIEWS

Among the persons interviewed during this evaluation project were: the chief executive officer, the director of nursing, the business office manager, the chief inhalation therapy technician, the chief of medical records, the director of radiology, and the CASH representative. The CEO requested that his own interview be conducted after other hospital personnel had been questioned. Summaries of the interviews follow.

Chief Executive Officer

The chief executive officer, who had assumed his position in 1965, appeared to be highly motivated. He was very knowledgable about the operation of his hospital. During the interview, he was ques-

Table 2. Departmental Summary Performance Indicators — Base, First, Second, and Third Incentive Years — Business Office

Item	Base Year	Incentive Years First	Second	Third
Performance index	86%	88%	91%	95%
Admissions	4,708	4,831	4,495	4,491
Standard hours	35,574	36,153	34,571	34,588
Actual Hours	41,365	40,936	38,109	36,493
FTE variance*	(3.04)	(2.52)	(1.86)	(1.00)

Table 3. Departmental Summary Performance Indicators — Base, First Second, and Third Incentive Years — Inhalation Therapy

Item	Base Year	Incentive Years First	Second	Third
Performance index	75%	77%	89%	101%
Intermittent positive pressure breathing treatments†	10,167	12,236	11,701	12,675
Standard hours	6,185	7,405	7,090	7,665
Actual hours	8,280	9,657	7,964	7,583
FTE variance*	(1.10)	(1.19)	(.46)	.04

†Standards established accounted for other services, even though the IPPB was the standard volume indicator. The mix of other activities performed in the department was weighted into the standard volume indicator. As the volume of IPPB's changed, the volume of their activities was assumed to change proportionately because the basic mix of services provided was the same.

Table 4. Departmental Summary Performance Indicators — Base, First, Second and Third Incentive Years — Medical Records

Item	Base Year	Incentive Years First	Second	Third
Performance index	97%	99%	86%	79%
Discharges	4,708	4,831	4,495	4,491
Standard hours	7,325	7,517	6,996	6,990
Actual hours	7,568	7,606	8,113	8,893
FTE variance*	(.13)	(.05)	(.59)	(1.00)

**FTE variance is actual working hours minus standard hours divided by an estimated average work year of 1,900 hours.*

Table 5. Departmental Summary Performance Indicators – Base, First Second, and Third Incentive Years – Nursing

Item	Base Year	Incentive Years First	Second	Third
Performance index	60%	62%	65%	70%
Patient days	26,719	26,841	25,437	24,348
Standard hours	127,064	127,652	122,595	118,008
Actual hours	211,052	206,488	187,193	167,567
FTE variance*	(44.20)	(41.49)	(34.00)	(26.08)

Table 6. Departmental Summary Performance Indicators – Base, First, Second, and Third Incentive Years – Radiology

Item	Base Year	Incentive Years First	Second	Third
Performance index	85%	87%	73%	66%
Examinations	8,336	8,382	8,393	7,528
Standard hours	8,934	8,979	8,779	7,911
Actual hours	10,518	10,329	12,058	12,069
FTE variance*	(.83)	(.71)	(1.73)	(2.19)

**FTE variance is actual working hours minus standard hours divided by an estimated average work year of 1,900 hours.*

tioned, in some depth, concerning his beliefs about the reasonableness of operating costs both in his hospital and in the health care industry and about his perception of the level of efficiency in both.

The CEO's opinions about hospital costs were somewhat unclear. He said he believed that operating costs in Hospital M were about what they should be, inasmuch as it rated near the median in an unidentified study of hospital charges published by Blue Cross. Even so, he said he thought that his costs probably could be reduced in some departments. He commented, however, that, as long as the "bottom line" on the financial statement read about as expected, he chose not to take action. The CEO indicated that he used an historically established operating budget as the primary method to keep staffing patterns consistent with the average demand for hospital services. He said that, at Hospital M, "we staff the average census, not peaks or valleys." Consistent with the CEO's statement about costs was his statement that efficiency in Hospital M and in hospitals in general was about adequate. He said he based this judgment on the fact that "hospital census is the basic element on which efficiency must be measured."

In response to questions concerning the use of industrial engineering methods in hospitals, the interviewee said that such methods could significantly decrease operating costs both in his hospital and in the health care industry. Moreover, he said, "CASH standards have worked for us to a great degree." He added that the standards were as valid as possible, complimenting CASH on its "actuaries." (It is here that the first question emerges concerning the CEO's understanding of the LPC program. The reference to "actuaries" rather than standards led the interviewer to ask additional questions. It became clear that the CEO was under a misconception concerning the development of the CASH standards. He believed that one set of standards had been developed for the hospital industry. He did not realize that the standards developed for Hospital M had, in fact, been tailored to it.)

Inasmuch as a third party (CASH) was introducing the labor performance controls, the CEO said he had believed that he could use the LPC program to increase productivity without encountering a negative response from hospital personnel. He indicated that some negativism might have developed if he,

alone, had introduced the controls. (It should be noted that, in introducing the LPC program, the CEO had misrepresented it by telling employees that it was an externally imposed program and that the hospital was obligated to improve its performance index.)

During the interview, the CEO indicated that he had retained ultimate administrative and operational responsibility for CASH-IRE. Retaining full responsibility was consistent with his management style, as evidenced by the fact that the hospital had no assistant administrator, no controller, and no other top management personnel. The CEO stated that the amount of time he had spent in administrative activities related to the experiment was "very insignificant." His administrative responsibilities, he said, had been limited to periodic discussions of CASH-IRE at department head meetings early in the experiment. After several of these meetings, he had become less involved. The CEO said he had reviewed monthly LPC reports, but action related to these reports had rarely been taken. This lack of action resulted from the philosophy that financial results, as reflected in the budget, were considerably more important than declining productivity or poor performance in any particular department. Despite the foregoing, the CEO indicated that he had been somewhat motivated by the financial incentive. The interviewer was unable to determine, however, if any direct actions had been taken by the CEO to make an incentive award likely.

The CEO stated that Hospital M had developed no specific programs aimed at improving productivity during the experiment. Moreover, no specific goals has been established for individual departments. The interviewee noted that no conflicts had arisen among hospital personnel concerning the implementation of the LPC program or the adequacy of the standards once he had said that he had no control over the "actuaries" or standards which had been developed for the hospital industry as a whole.

The CEO was asked to comment on the performance of the five departments selected for indepth review. In doing so, he characterized the effectiveness of the *Business Office* as below his expectations. The department's performance index had risen, however, throughout the experiment — 86 per cent in the base year, followed by 88, 91, and 95 per cent in the subsequent years. Total actual hours had declined almost 5,000 between the base year and the third incentive year. The CEO reported that the Business Office had not been a well-run department. He cited as reasons a change in Business Office managers and changes in supervisory personnel. Although the CEO indicated that he had been unhappy with the CASH standards for this department, he had made no effort to seek any revisions or adjustments.

The interviewee also said he considered management effectiveness to be poor in the *Inhalation Therapy Department.* He reasoned that the poor management had resulted from the fact that the chief technician had been trained in respiratory functions but not in management. Despite the CEO's perception of poor management, the Inhalation Therapy Department's performance index increased from 75 per cent during the base year to 77, 89, and 101 per cent in the following three years. When questioned about the chief technician's complaints with regard to the failure of the CASH standards to include procedures other than IPPB (intermittent positive pressure breathing) treatments in volume statistics, the CEO said he did not understand why the chief technician had questioned the validity of the standards. (It should be noted that the belief that statistics included only IPPB treatments was in error.) The CEO could give no explanation for the Inhalation Therapy Department's increase in productivity.

With respect to the *Medical Record Department*, the CEO said the improvement in performance index the first incentive year had been "directly related to the CASH effort." On the other hand, the CEO was unable to explain the decline in performance index from 99 per cent in the first incentive year to 86 per cent in the second incentive year and to 79 per cent the third year. The CEO said he thought that, in general, management effectiveness was poor in that department. He noted, however, that receptivity to innovation and to CASH-IRE had been good, and he suggested that the decline in productivity may have resulted from changes in procedures and methods tried by the new department head named during the second incentive year. The new director of medical records was described as a highly motivated individual who had excellent technical ability. The CEO reported that inadequate equipment in the department may have been partly to blame for the decline in performance. (It should be noted here that the CEO had reported earlier that equipment had not influenced performance during the experiment.)

The *Nursing Department* at Hospital M had increased its performance index from 60 per cent in the base year to 70 per cent in the third incentive year. At the same time, patient days had declined

from 26,719 in the base year to 24,348 in the third incentive year. When questioned about this information, the CEO commented that management effectiveness had increased greatly in nursing service, particularly during the second and third incentive years. He said that the improvement had resulted from the efforts of the CASH representative. These efforts, he said, had focused specifically on the scheduling of the nursing staff. The CEO noted that, while the director of nursing had not initially been receptive to the LPC program, or to change in general, she had become more receptive as the department's performance index increased.

According to the CEO, the *Radiology Department's* performance had been "one of the poorest." He commented that the department had been very loosely staffed in relation to standard hours. The CEO maintained that he had yielded to pressures from the contract physicians for additional staff, despite a declining volume, and as a result was unable to maintain proper staffing. This, he believed, had caused the decline of 19 percentage points in the department's performance index.

The CEO characterized the chief technician as cooperative and technically competent. Moreover, the CEO said he was pleased with the contract radiologists. With the exception of the staff's insistence on the addition of one technician, he said he had experienced no difficulty with the group. Because he had believed he would have difficulty in convincing the radiologists of the reliability of performance standards, the CEO had not attempted to orient the radiologists to the LPC program.

The CEO indicated that much of the performance improvement in Hospital M had resulted from the ability of CASH-IRE to set documented standards, developed by an outside source, and to report back regularly to department heads statistics that could be measured against their own performance. (It should be noted that the foregoing statement does not appear to coincide with fact, in view of the CEO's previous statements concerning his reliance on budget-related activity, his failure to involve medical staff members, and his inability to describe any LPC-related actions he had taken.)

When asked to describe any positive or negative changes in efficiency, effectiveness, or quality of service in departments other than those mentioned, the CEO was unable to do so. He reported, however, that "an overall improvement in hospital activity" had taken place. The interviewee indicated that, during the experiment, there had not been a hospital-wide hiring freeze to discourage increased staffing. He said that only individual position controls had been maintained and that department heads had not needed to have replacement positions approved. *The CEO could not explain why the hospital's performance index had consistently increased during this period while census decreased. He stated that performance and census should have had a closer relationship than was evidenced in this hospital's history.* Finally, the CEO stated that, with the exception of changes in nursing schedules, specific operational methods had not been discussed between department heads and the CASH representative.

When asked whether the experiment had had some value beyond offering a potential financial reimbursement to the hospital, the CEO stated that it had made possible the use of a third party to initiate a labor control program that would otherwise not have been instituted. When asked if he intended to continue with the CASH LPC program and/or CASH membership past the end of the experiment, the CEO responded that he had no plans to do so. He reasoned that he did not want to initiate or "bring the heavy hand of" CASH himself, because he had informed department heads that CASH-IRE was an experimental program over which he had no control.

The CEO reported that incentive payments for all three incentive years had not been earmarked but had been put, instead, into general patient revenue accounts. While the hospital staff had been aware that the hospital was participating in an experiment, neither hospital personnel nor the medical staff had been aware of the receipt of incentive payments.

Hospital Personnel by Functional Department

As previously stated, five departments were selected for indepth review in Hospital M. Representatives of these five departments were interviewed as part of the site visit.

Business Office

The woman who had been Business Office manager from 1967 to 1971 had subsequently been given the less responsible position of payroll supervisor. After making this change in assignment, the CEO hired a new Business Office manager, who was terminated by him some nine months later. The CEO then asked the payroll supervisor to assume her previous duties as Business Office manager, which she did. The CEO did not then hire a new

payroll supervisor but reassigned payroll responsibilities to other personnel in the department.

The Business Office manager said that she had been aware of the CASH LPC program, although she had not known of the experiment per se. She reported she had spent some time in preparing data to be submitted to the LPC program and in preparing the Annual Productivity Questionnaire.

In response to questions concerning her attitude toward the LPC program, the Business Office manager indicated that, initially, it had been negative. She said she had believed that the program could do little to help her meet her daily operating problems. Moreover, she said she believed it would be unfair to use the standards since she had been excluded from their development. The interviewee reported, however, that, by the end of the experiment, she had thought better of the program's value in improving efficiency and effectiveness. She stated that the feedback of data in LPC reports had been the most significant part of the experiment. She said that these reports had been helpful to her in preparing monthly reports on volume and in filling out the Annual Productivity Questionnaire. "Data coming in helped me to see what was happening," she said.

In response to questions concerning the Business Office's performance during the experiment, the Business Office manager said she had been aware of the department's overall improvement. She had not been aware, however, that the department's performance index had increased from 91 per cent to 95 per cent from the second to the third incentive year.

When questioned about her perceptions of how Hospital M compared with other hospitals in relation to efficiency, effectiveness, and operating costs, the interviewee's answers were vague. She said she was unsure of how Hospital M compared. She did report, however, that she had seen no major differences in efficiency, effectiveness, or operating costs as a result of CASH-IRE. She said that her instinctive feeling about efficiency was that, very probably, Hospital M rated higher than average. When asked if CASH-IRE had improved or changed operations in any other departments, the Business Office manager stated that the nursing payroll had been reduced, which may have been a result of the LPC program.

In summary, the Business Office manager stated that the administration's desire to limit the replacement of personnel in the Business Office and the feedback provided by LPC reports documenting the actual amount of work performed were important factors in the department's increased productivity. The interviewee commented that specific CASH recommendations had played no part in the overall improvement. The decline in actual hours from 41,365 in the base year to 36,493 by the end of the third incentive year had been accomplished through normal attrition and through the desire of the administration to minimize actual hours in light of the declining volume.

Inhalation Therapy Department

At Hospital M, inhalation therapy services were provided through a contract with an on-call medical director who was responsible for reading reports of pulmonary treatments. Administrative responsibility, however, rested with the chief technician. The chief technician was a certified respiratory technician, who had been head of the department for four years.

During the interview, the chief technician indicated that he had not been aware of any prior involvement on the part of the hospital with the CASH organization. This individual did, however, exhibit a basic knowledge of the LPC standards. When asked about his attitudes toward the LPC program, the department head showed his strong negativism. He indicated that his attitude had been based on the fact that "we were getting the short end of the evaluation because we were counted only for IPPBs, not for ultrasonic treatments or other services." (It should be reemphasized here that standards established did account for other services, even though the IPPB was the standard volume indicator.) The chief technician stated that he had never been given the opportunity to talk to the CASH representative or to the CEO about the standards and their accuracy. He did not indicate how he had known that the standards were inaccurate or at what point he had been introduced to the LPC program.

The chief technician stated that he did not know anything about effectiveness or efficiency and was not very concerned about it. When asked what impact the program had on the quality of service provided by his department, the interviewee said he believed that it had had no impact. Regarding the impact of the program on the quality of other hospital services, the chief technician said, "Quite frankly, to hell with the program. . . . I don't know anything about it." The interviewee expressed his appreciation at being questioned about the LPC program but indicated, somewhat apathet-

ically, that the concern had come three years too late.

In response to questions about operating costs, the chief technician said he perceived operating costs in his department as about right. He also said his experiences in other hospitals in the same metropolitan area substantiated this. When asked about his perception of the level of efficiency in his department, he stated that it was about what it should be in comparison with other hospitals. He went on to say that efforts to increase department staffing in light of both the increased demand for services and the increase in volume had been unsuccessful. He did not say, however, why the CEO had turned down his requests.

When queried about industrial engineering techniques, the interviewee stated that such techniques have little or no effect on operating costs. Moreover, he said he did not need formal industrial engineering techniques in order to manage his department effectively. He stated that none of his time had been spent on CASH-IRE-related activities.

During the interview, the interviewer explained that the Inhalation Therapy Department had increased its labor productivity over the life of the experiment. In response to questions concerning this fact, the chief technician stated that he had been aware of the increased productivity and explained that it had been caused by positive reinforcement, "a pat on the back," from the medical staff and the administration. He failed to mention the increase in volume as a significant reason for the increase in performance index. The interviewee reported that scheduling changes, recruitment problems, and hiring freezes had not hindered further improvement in productivity. On the other hand, he could identify no other factors that might have inhibited it.

The chief technician indicated that he had been aware that the hospital was involved in the experiment, but he had not been aware that the hospital had received incentive payments.

Medical Record Department

The head of the Medical Record Department had been named to her position during the last incentive year. The previous department head had been employed there for about five years.

During the interview, the chief of medical records exhibited a disgruntled attitude toward the experiment and toward the LPC program. She stated that she had learned of individual monthly performance indices of as high as 116 for the department during the first and second incentive years. Yet, after she had assumed the position of head of that department, the monthly performance indices had declined in the last incentive year as low as 76 per cent, averaging 79 per cent for the year. She reported that her biggest complaint was that she was unaware of the reasons for the decline in labor performance, for which she blamed both the CEO and the CASH representative. The interviewee reported that, initially, she had been neutral about the program, willing to see what effect it might have. When she did not get adequate feedback about departmental performance, this neutrality turned to negativism.

In response to questions about changes in efficiency, the department head reported that she had made changes to increase labor productivity but that these had not been made as a result of any recommendations made by CASH. As examples of improvements, she said she had initiated a new filing system, had revised transcription procedures, had tightened discipline, and had introduced some new forms in the department.

General operating costs in medical record departments in general and in her department in particular were perceived by the chief of medical records to be about adequate. She stated, however, that her department had been more efficient in the past than it was at the time of the interview. Department personnel were said to agree. She pointed out that the decline in efficiency resulted from the CEO's veto of salary increases requested by her and the resulting low morale and high turnover in personnel. One of her complaints about the CASH LPC program was that salary, quality, and effectiveness levels had never been discussed with the CASH representative.

The chief of medical records reported that, if the CASH program had been used properly in providing comprehensive feedback, the value of industrial engineering techniques would have been increased. In her words, "our input from CASH was limited." She stated that she had not been head of the department long enough to take advantage of the prerogatives of seniority to report what she thought to the CEO. Moreover, the CEO was not generally open to a discussion of these problems. She had been told by him that CASH involvement in the hospital should not be questioned.

The chief of medical records stated that a hospital-wide hiring freeze, a department freeze, and specific recommendations made by CASH had not

been major factors in regard to changes in productivity. When she was asked what she thought might have been factors that inhibited improved performance, she pointed to old equipment — typewriters and transcription units. In addition, she noted that Hospital M had not been involved with any automated retrieval system — e.g., the California Health Data Corporation or PAS-MAP. She said she did not know whether these information retrieval programs were standard-adjusted. The interviewee reported that the administration was somewhat "old fashioned in its unwillingness to participate in these retrieval programs and that this may have been holding down the department."

Nursing Department

The director of nursing, who had held her position for 12 years, included among her responsibilities not only the nursing floors but also the operating rooms and central service.

When questioned about CASH-IRE, the interviewee indicated that she had known about the experiment and that she had also known that Hospital M had not been a CASH member prior to it. She had been unaware, however, of the specifics of CASH-IRE and was unable to provide specific information when questioned in depth about nursing standards. The director of nursing indicated that she had reviewed monthly LPC reports during the experiment in relation to previous months' reports for her department and in relation to reports of other hospitals.

The interviewee indicated that her initial attitude to the experiment had been extremely negative. She pointed out that her resentment had stemmed from the fact that new routines and ideas were going to be implemented in her department — changes that she had no control over. She said, however, that she had recognized the value of the program by the end of the first incentive year, when the CASH representative had been instrumental in helping her reschedule employees better to meet staffing needs. (It should be noted that the CASH representative's ability to work with her was an additional reason for improvements in the department.) She stated that "CASH representatives can't show nurses how to nurse, but they can show them how to better use nursing hours." The director of nursing reported that she had spent approximately five per cent of her time in experiment-related activities.

When questioned about the general attitude of her staff toward CASH-IRE, the interviewee reported that her staff had been very negative toward the program at first. However, at the time of the interview she described staff members' attitudes as neutral to positive. She attributed this change to the "soft-pedalled" approach of the CASH representative and to his ability to change nursing schedules to the benefit of most nurses. According to the director of nursing, the only really negative aspect of the program was that nurses currently had every third weekend off. Prior to the scheduling changes, they had had every other weekend off.

The director of nursing said she believed that her people had been impressed with the value of the LPC program in improving effectiveness and efficiency. She reported that the quality of service in her department had not changed since the implementation of the program. *When asked whether she had been aware of a change in nursing's performance index during the incentive years, she responded that the performance index had increased 20 percentage points per year. (It should be noted that the total increase in the performance index over the life of the experiment had been 10 percentage points — from 60 per cent in the base year to 70 per cent in the third incentive year.)* The director of nursing stated that other factors contributing to improved labor productivity had been based on CASH recommendations. These recommendations included eliminating some part-time staff and encouraging personnel to take vacation days when the census declined.

The interviewee was then asked some general questions about hospital costs, efficiency, and effectiveness. In response, the director of nursing said she thought costs in the hospital industry were generally higher than was necessary to meet the needs. With reference to the level of efficiency in Hospital M's Nursing Department, she stated that her hospital rated higher than most because it was fortunate in having good nurses who wanted to do a good job. At the time of the interview, she was convinced that industrial engineering techniques could significantly decrease hospital operating costs without sacrificing the quality of care provided.

Radiology Department

The director of radiology, who was a board-certified radiologist, had responsibility for radiology services in four small-to-medium sized hospitals in the same area. He provided these services on a contract basis with a four-man staff. All of the radiologists were active members of Hospital M's medical staff. The individual interviewed functioned primarily at Hospital M.

When questioned about operating costs, the physician stated that Hospital M was "probably among the best cost controlled of any hospital I have seen, without loss of quality." He stated that the CEO had taken a very personal interest in cost control. He pointed out that this was not only his opinion but also the opinion of his colleagues. The physician radiologist also said he believed that efficiency in Hospital M was more than adequate. He could give no indication, however, of whether his colleagues believed as he did in this matter. He did state that "the doctors like it. . . . It is at least the equivalent of or better than other hospitals. The department moves excellently. There is a small teaching program here that I help run, and that, I think, makes this hospital among the best of its size in this area."

The radiologist stated that he had no idea what relative costs were in other hospitals and did not understand the concept behind industrial engineering techniques. Even so, he said he recognized that industrial engineering could be useful in a general sense and said that he would like to see it applied at Hospital M. The radiologist stated that he knew there was certainly room for improvement in his department, but he recognized the limitations of industrial engineering methods when questions of patient care and quality of professional expertise became involved. While this individual expressed interest in industrial engineering methods, he made it clear to the interviewer that he was unfamiliar with them and did not understand their relation to measuring productivity or to the performance index.

The radiologist said he believed that the availability of hospital staff had remained about the same during the three incentive years of the experiment. He also indicated that the effectiveness of the staff and the satisfaction of patients had not changed. The interviewee reported that positive changes had been observed as the result of the new x-ray equipment; the quality of patient care had improved. Moreover, x-ray technologists had gained additional experience that had aided them in doing a better job. The director of radiology would not compare Hospital M with other hospitals of comparable size and scope when it came to individual factors, such as availability of services, effectiveness, patient satisfaction, or patient care services. He said this would be an unfair evaluation on his part, as he had not had enough experience in other institutions.

When asked if he had been aware of the hospital's participation in CASH-IRE, the radiologist recalled that some mention had been made of "something to do with incentive reimbursement." However, he said he had no idea what the department's performance index was and did not know of any dollar incentives awarded to the hospital.

CASH Representative

The CASH representative assigned to Hospital M had been assigned at the beginning of the experiment and remained in that assignment to the end. While this individual was no longer with the CASH organization at the time of the evaluation interviews, he was aware of the evaluation team's objectives and consented to answer questions about Hospital M's experience.

The CASH representative reported that the CEO had been extremely cooperative and supportive of CASH-IRE. Department head meetings had been held to review departmental performance, particularly that of low-performing departments. The representative also reported that he had established a long-term relationship with the CEO that contributed to the maintenance of a high performance index. He did not elaborate on this statement. In addition, the representative pointed out that the relatively simplistic organizational structure of Hospital M and the minimal number of line managers contributed to the overall improvement. The CEO's management decisions were rarely open to question or interpretation.

When asked to identify specific departmental actions taken to improve Hospital M's performance index, the interviewee reported that he had had little contact with the department heads, with the exception of the director of nursing. He explained that his departmental activities at this hospital had been focused on LPC input information. His time had been devoted to reviewing data rather than attempting to improve work tasks or methodologies. Only in the Nursing Department, he reported, had any task-oriented work been performed by him. The CASH representative went on to say that the department heads' general understanding of the LPC program was poor. He stated further he believed that most department heads at this hospital had not had adequate management training.

The interviewee made no mention of his involvement in the orientation programs for department heads. He indicated that his continued participation had been on a relatively informal basis, inasmuch as there was little that he could accom-

plish because of the CEO's ultimate decision-making authority.

The CASH representative reported that the Business Office manager, having reassumed department leadership after about nine months in a lesser position, often acted as an extension of the CEO. The latter was described as being very concerned with Business Office activities. The CASH representative reported that the interim Business Office manager had been a deterrent to improvement in the department because of ineffective methods and poor leadership.

Improvement in the Nursing Department was described as "mostly a direct result of the [efforts of the] director of nursing and not particularly of any CASH effort." (It should be noted that this statement conflicts with a statement by the director of nursing, who reported that CASH had been instrumental in improving the service through scheduling changes.) The CASH representative reported that, while he had recommended scheduling changes to nursing, his general involvement in the department had been minimal.

The CASH representative reported that the Medical Record Department, with approximately 4.2 FTEs, was "a great operation even though it declined." He characterized the decline in performance in that department as being the result of the necessity of covering the department even though personnel were not always fully occupied. The representative reported that the department was as well staffed as possible, even though it had declined in performance index. He said he had, in fact, used Hospital M's Medical Record Department as a model when working with other hospitals.

The CASH representative stated that he was unfamiliar with any changes in the performance index of the Inhalation Therapy Department. He indicated that he had never had any relationship with this department and, thus, was unable to answer any questions concerning it.

The CASH representative reported that the Radiology Department had cut staffing over the life of the experiment. (It should be noted that this statement is in conflict with the fact that actual hours had increased from 10,518 to 12,069 by the end of the third incentive year, while standard hours declined approximately 1,000. No explanation could be found for the confusion of the CASH representative, and questioning about this department did not continue.)

The motivational effect of the experiment's financial incentive was described by the CASH representative as secondary to the motivational effect of the CEO's cost consciousness. The representative stated that standards were accepted at face value. He said he was unaware of the "actuarial" bases upon which standards were believed to have been set. He indicated also that he was unaware of the inhouse incentive program described by the CEO. He reported his contact with the hospital was minimal — in fact, once a month. It had been his usual practice to hand deliver the LPC reports to the hospital.

In a general explanation of this hospital's performance in the experiment, the CASH representative stated that there was little question in his mind that increased productivity had been the result of one individual — the CEO. He added that the LPC program and data may have been used as a convenient method or tool to use in promoting staffing changes, but it had been secondary to use of the budget.

SUMMARY AND CONCLUSIONS

Summary

The following summary and conclusions are based on data drawn from experiment reports and the indepth interviews conducted.

Hospital M received incentive payments totalling $30,547 during the three years of the experiment. The hospital's performance index improved from 74 percent in the base year to 82 per cent in the third incentive year. During this period, patient days declined from 26,719 in the base year to 24,348 in the third incentive year. Only in the first incentive year did patient days increase. Despite the decline in patient days, Hospital M was able to increase its overall performance index and earn incentive payments.

Interviews conducted with the hospital's chief executive officer, selected department heads, and the CASH representative assigned to the hospital showed that the hospital's performance resulted from the cost-containment policies and efforts of the CEO. These efforts were not perceived as having been enhanced by the CASH-IRE financial incentive. The LPC program had been used as additional leverage in budgeting negotiations, which had been the principal means used by the CEO in controlling hospital staffing.

Hospital M's CEO expressed his favorable attitude toward the experiment but offered contradictory comments concerning it. He perceived hospital operating costs as appropriate, although he judged some departments to be in need of improvement. Moreover, he said he considered industrial engineering methods to be an important adjunct in helping lower hospital costs. Upon closer questioning, however, this individual demonstrated that he did not understand the bases upon which the LPC standards were developed — he thought them to be identical for all participating hospitals — nor did he continue to subscribe to CASH, or to any other industrial engineering system, following the conclusion of the experiment. The CEO admitted that the financial incentive had not provided much motivation for improvement.

It should be noted that at least one department had been involved in an incentive plan at one time in Hospital M. This plan had been a bonus system that had involved sharing with the department head cost savings that resulted when projected budget costs exceeded actual costs. It was not based on industrial engineering methods.

During the experiment, the CEO had informed department heads that labor productivity improvement "was something we had to do." Because the program had been sponsored by an outside agency, the CEO thought he could use the data more forcefully because employees would blame CASH, not him, for any problems. The CEO indicated that he had used the LPC program to improve productivity in departments exhibiting what he considered to be poor performance. He could not say how or what he had done in attempting to improve productivity, even though he had implied that changes in department leadership were the ultimate actions usually taken.

When asked about department performances, department head attitudes, and CASH involvement at Hospital M, the CEO indicated that most key personnel had only a low level of understanding of CASH-IRE.

The CEO described the *Nursing Department* as the major beneficiary of CASH services — hence the consistent improvement in this department's performance index. In response to probing for specifics, the CEO could offer only one — CASH-recommended changes in nursing schedules. When the revised schedules were implemented, the once negative attitude of the director of nursing toward CASH changed markedly. This department head had become a strong supporter of CASH programs. However, no one described any ongoing use of the LPC program or data in this department.

While the performance index of the *Business Office* climbed from 86 per cent in the base year to 95 per cent by the end of the experiment, the CEO rated this department's effectiveness as one of the lowest. Turnover of supervisory personnel and a resulting inability to maintain timely and effective operations were cited as reasons for poor performance. According to the CEO, the relatively high performance indices did not reflect that department functions were poorly planned and delegated. The Business Office manager described her attitude toward CASH as having become more positive as a result of her review of monthly LPC reports, through which she was able to compare performance over time.

The *Inhalation Therapy Department* was described by the CEO as poorly managed. However, he reported that he had taken no action to suggest or to make any improvement. This department, nevertheless, exhibited a dramatic increase in performance index from 75 per cent in the base year to 101 per cent in the third incentive year. An interview with the CASH representative revealed that he had not contributed toward improvement in this department. The department chief's negative attitudes toward CASH, his minimal understanding of the labor performance standards, and his lack of knowledge of the improvement in the department's performance index were attributed to his lack of involvement with the LPC program, the CASH representative, and the CEO.

The performance index of the *Medical Record Department* declined from a high of 99 per cent to 79 per cent at the end of the experiment. For this decline the CEO blamed poor management effectiveness in the department, poor receptivity to CASH, and a change in department heads. Both the CEO and the department head identified equipment inadequacies and a manual data retrieval system as factors contributing to the decline in performance index. The CEO's statement conflicted with an earlier statement by him that no equipment changes or problems had had any effect on the hospital's performance. (Once again, he had showed a lack of understanding of the basis on which standards had been developed.) The CASH representative had been unaware of a performance decline in this department. He stated that he was unaware of any factors, other than labor input, that might have influenced Hospital M's performance. The representative indicated that he had

used Hospital M's Medical Record Department as a model in discussions with other hospitals.

The *Radiology Department* was characterized by the CEO as being poorly managed. He said he believed the decline in performance index — from a high of 87 per cent in the first incentive year to 66 per cent at the end of the experiment — was the result both of professional pressures for increased staff and of a decline in volume. During the second incentive year, one additional FTE was added to this department; the annual volume of radiology examinations remained almost constant. During the third incentive year volume had declined by 10 per cent, and actual hours had remained at the previous year's level. No effort had been made, however, to introduce the LPC staffing methodology to departments headed by physicians. The CEO had not wanted to involve any physicians in CASH-IRE, since such involvement might jeopardize professional relations. The CASH representative substantiated the CEO's attitude. The CEO had told the CASH representative to keep "hands off" the professional departments.

Conclusions

Hospital M was among seven of the 25 experimental hospitals that experienced an overall cumulative incentive gain throughout the experiment. Its $30,547 total incentive payment was reflective of a relatively small, but consistent, increase in labor productivity. Results of this case study lead to the conclusion that:

1. The financial incentive provided little motivation for the CEO, and none for the remainder of the staff, to improve labor productivity.

2. LPC data may have been used as leverage and as an adjunct to the budgeting process in controlling resources, including labor.

3. The CEO's dissatisfaction with department effectiveness, in several cases, suggests that increased efficiency may have been achieved at the expense of effectiveness.

4. With the possible exception of scheduling changes in the Nursing Department, no direct relationship between improved labor productivity in Hospital M and its use of the LPC program was apparent.

CASE STUDY: HOSPITAL S

INTRODUCTION

Hospital S is a 447-bed county hospital, located in the southern part of California. It is a university-affiliated teaching hospital that provides a full range of acute and chronic care services for both inpatients and outpatients.

During the three years of the Incentive Reimbursement Experiment (IRE), conducted by the Commission for Administrative Services in Hospitals (CASH), the hospital recorded incentive losses totalling $316,650. (For the formula used in computing incentive gains [losses], refer to *Incentive Reimbursement Experiment*, Blue Cross of Southern California, 1973.)

Summary of Statistical Results

As shown in Table 1, Hospital S demonstrated a high base-year performance index (PI) of 102 per cent. The performance index declined thereafter to 100 per cent, 93 per cent, and 89 per cent in the first, second, and third incentive years. At the same time, patient days declined from 90,045 in the base year to 88,352, 86,003, and 80,795 in the next three years.

Influencing Factors

Although a number of factors influenced the performance of this hospital during the experiment, the interviewer believed that two factors made the major impact. These two were the hospital's efforts to change its image and the almost complete lack of awareness of, or the confusion about, the Labor Performance Control (LPC) program on which the experiment was based. Among the other influencing factors were the hospital's membership in CASH prior to the experiment, its teaching responsibilities, its physical plant, and its outlying outpatient clinics; government control of the hospital, and the gradual change in patient mix.

It should be noted first that the experimental period coincided with an effort among California's county hospitals to change their image from hospitals of last resort for the poor to institutions more closely approximating community hospitals. As a result of the Medicare and Medi-Cal legislation, Hospital S experienced a substantial decline in demand for long-term services and an increase in demand for acute care services, which was reflected in a significant increase in admissions and a decline in patient days. The hospital also found new and increased sources of revenue available to it. In response to these circumstances, Hospital S increased staffing to reflect the change in demand for service and to approximate the staffing levels in community hospitals. In addition, efforts were made to pro-

Table 1. Total Hospital Summary Performance Indicators, by Incentive Experiment Years, and Computed Incentive Gains (Losses)

	First Year		Second Year		Third Year	
Item	*Base Year*	*Incentive Year*	*Previous Year*	*Incentive Year*	*Previous Year*	*Incentive Year*
Performance index*	102.14%	99.70%	99.29%	93.40%	93.40%	89.34%
Inpatient payroll*	$5,062,473	$5,149,203	$5,372,633	$5,678,747	$5,941,437	$6,242,246
Inpatient actual hours*	1,115,248	1,188,170	1,148,673	1,261,970	1,261,970	1,298,253
Inpatient standard hours*	1,139,109	1,184,562	1,140,572	1,178,700	1,178,700	1,159,855
Patient days	90,045	88,352	88,352	86,003	86,003	80,795
Occupancy	60%	59%	59%	58%	58%	54%

	First Year	Second Year	Third Year
Gross Savings (Loss)	($ 86,730)	($306,114)	($300,809)
Total Incentive Gain (Loss)	($122,134)	($315,240)	($301,775)
Net Total Award (Loss)	($ 48,975)	($134,260)	($133,415)

**Previous year figures reflect adjustments related to wage differences or to changes in volume or standard hours.*

mote attitudes among employees that were more compatible with the desired new image. Even without the details, it is apparent that the "image-change" factor was a strong countervailing force to improving labor productivity during this period.*

Even though Hospital S had been a CASH member prior to onset of the experiment, staff members showed a good deal of confusion regarding the LPC program. Key hospital personnel, including the chief executive officer, the assistant hospital administrator, and the director of nursing, maintained that they were familiar with industrial engineering techniques as a result of their past relationship with CASH. The LPC program, however, had not been part of their previous involvement, and hence these individuals showed confusion between the prior limited activities of the CASH representative and the more indepth involvement associated with the LPC program. Whether this confusion and lack of awareness was attributable to the overriding concern with the image change, to a turnover in CASH representatives, or to other factors is not entirely clear. However, erroneous and often conflicting comments were made by persons interviewed during the evaluation project.

The CEO identified other factors that might have affected the hospital's operation. *Hospital S is a teaching institution with a house staff of rotating interns and residents who are often involved in performing tasks that are usually assigned to hospital employees. As a government-controlled institution, this hospital also had responsibility for non-patient care activities, such as providing laundry services to other county facilities, including the jail, the detention school, and the county's administrative offices. It also, on occasion, had county prisoners assigned to it for the performance of ground maintenance chores.* (It should be noted that CASH was aware of most of these circumstances and that it was CASH policy to provide for such unusual circumstances in an equitable manner.)

The CEO also cited the hospital's two "independent" outlying outpatient clinics as a possible influencing factor. He suggested that these clinics, which were staffed by county hospital employees and house staff, might have had a negative influence on the hospital's performance. (The interviewer did discover that many of the services associated with these clinics, such as administrative, financial, medical coordination, and pharmacy administration, were being provided by the hospital.)

In this experiment, outpatient services were unmeasured cost centers, and direct labor was excluded from the computation of the hospital's performance index. Because these clinics were an unmeasured activity and because their administration was, to some degree, handled by hospital department heads, this labor contribution of hospital personnel was not fully adjusted for in the exclusion of outpatient services in the incentive calculation. This organizational situation had not been explained by the CEO but was later discovered by the interviewer in a review of standard hour allowances. As clinic activities increased — particularly as they resulted in proportionately greater manhour requirements in the Pharmacy Department and in the Business Office — no changes in CASH standards were made. Had such changes been made, the hospital's performance index would have been positively affected.

It was suggested that the change in patient mix, from fewer to more acute care patients, that occurred gradually after the initial compilation of data may have had a negative influence on the outcome of the experiment. This change was reflected in the fact that, over the life of the experiment, patient admissions increased from 8,932 in the base year to 11,031, 12,197, and 11,467 in the subsequent incentive years. During the same period, the number of days of patient care declined by approximately 10,000. As a result, CASH recommended the use of a patient classification system for establishing nursing standards — e.g., more acute surgery patients would require more nursing hours per patient than less acute surgery patients. This recommendation was not implemented, and nursing standards were not adjusted. Because it is likely that the intensity of nursing services increased as the length of stay declined and because no concurrent change was made in nursing standards, it was to be expected that the performance index would decline. This factor, as related to the image change mentioned earlier, was brought to the attention of the interviewer by several persons during his review of Hospital S.

Selection as an Interview Site

Hospital S was selected as an interview site not only because of its performance during the experi-

*When another CASH-IRE county hospital had been approached as a possible interview site, its CEO indicated that the experiment and the LPC program had been totally ignored because image-change activities had been of primary concern during that period. These activities, he said, would produce results contrary to the objectives of the experiment.

ment but also because of its government control and its teaching affiliation.

Four departments in this hospital were chosen for indepth data gathering and review. They were the:

- *Administration Department*, which demonstrated a performance index of more than 185 per cent throughout the life of the experiment;
- *Business Office*, which recorded a performance index of more than 100 per cent until the third incentive year, when it declined to 74 per cent;
- *Nursing Service*, which declined 15 percentage points in performance index over the life of the experiment; and
- *Pharmacy Department*, which recorded a decline in performance index from 88 per cent in the base year to 82 per cent in the second incentive year and to 65 per cent in the third incentive year.

Tables 2 through 5 profile the performances of these four departments during the experiment.

The assistant director of CASH made the initial contact with the CEO concerning the evaluation project and explained the purpose of the evaluation, as well as its relationship to the Incentive Reimbursement Experiment. The CEO agreed to a site visit and arranged interviews with hospital personnel. The assistant director of CASH arranged for an interview with one of the three CASH representatives assigned to Hospital S during the experiment. Summaries of these interviews follow.

EVALUATION INTERVIEWS

The following personnel, plus a CASH representative, were interviewed as part of the indepth data gathering and review conducted at Hospital S: the chief executive officer, the assistant administrator responsible for CASH-IRE, the senior accountant in the Business Office, the director of nursing, the assistant director of nursing, and the chief pharmacist. The hospital's medical director, a salaried physician, was not able to meet with the interviewer, as had originally been planned.

Chief Executive Officer

The chief executive officer of Hospital S, who held a Master's Degree in Hospital Administration, had been CEO since 1968. Prior to that time, he had had administrative experience in a number of hospitals.

In response to questions about hospital costs, the CEO stated that costs in his hospital were comparable to those of hospitals in similar situations. Although he considered efficiency in Hospital S to be adequate, he said he thought that the effectiveness of its operations was less than ideal. The interviewee said he believed that industrial engineering could significantly decrease operating costs, improve efficiency, and raise levels of effectiveness both at Hospital S and in the hospital industry as a whole. He said, however, that total reliance on industrial engineering methods should be avoided in favor of a balanced management approach — one that included both scientific management and human relations techniques.

Although the CEO had retained ultimate responsibility for the CASH-IRE program, he had assigned responsibility for day-to-day operations to an assistant administrator. With respect to this assignment, the CEO had noted some degree of discontent on the part of department heads with the assistant administrator's responsibility for, and his reliance on, quantitative data and labor productivity reports as management and decision-making tools. The interviewee reported that he had spent only a minimum amount of time each month in reviewing CASH-related data.

According to the CEO, he had met with both house and staff physicians at the beginning of the experiment to explain to them the concepts of the CASH LPC program. In addition, he had sent a memorandum to all attending and consulting medical staff members to advise them of the hospital's participation in the experiment. In this connection, he stated that "there had not been too much flack from the chiefs of service." The CEO did report some initial dissatisfaction on the part of interns, however. This dissatisfaction was said to have subsided rather quickly.

The CEO reported that he had met every four weeks, for two or three hours, with his CASH Advisory Committee, which was composed of selected department heads. Appointments to this committee rotated monthly; only the director of nursing had a standing appointment. It was reported that the Advisory Committee had attempted to identify reasons for changes in departmental performance and to suggest action where needed.

Table 2. Departmental Summary Performance Indicators — Base, First, Second, and Third Incentive Years — Administration

Item	Base Year	Incentive Years First	Second	Third
Performance index	216%	212%	188%	186%
Calendar days	365	365	365	365
Standard hours	17,520	17,520	17,520	17,520
Actual hours	8,101	8,268	9,317	9,430
FTE variance*	4.96	4.87	4.32	4.26

Table 3. Departmental Summary Performance Indicators — Base, First, Second, and Third Incentive Years — Business Office

Item	Base Year	Incentive Years First	Second	Third
Performance index	102%	101%	110%	74%
Admissions	8,932	11,031	12,197	11,467
Standard hours	33,528	39,846	43,356	41,177
Actual hours	32,867	39,527	39,320	55,420
FTE variance*	0.35	0.17	2.12	(7.50)

Table 4. Departmental Summary Performance Indicators — Base, First, Second, and Third Incentive Years — Nursing

Item	Base Year	Incentive Years First	Second	Third
Performance index	104%	101%	89%	89%
Patient days	90,045	88,352	86,003	80,795
Standard hours	457,862	457,592	431,185	425,174
Actual Hours	441,564	454,872	483,701	480,364
FTE variance*	8.58	1.43	(27.64)	(29.05)

Table 5. Departmental Summary Performance Indicators — Base, First, Second, and Third Incentive Years — Pharmacy

Item	Base Year	Incentive Years First	Second	Third
Performance index	88%	86%	82%	65%
Prescriptions	113,780	106,119	169,851	164,430
Standard hours	11,567	10,985	15,829	15,425
Actual hours	13,185	12,808	19,365	23,770
FTE variance*	(0.85)	(0.96)	(1.86)	(4.39)

**FTE variance is actual hours minus standard hours divided by an estimated average work year of 1,900 hours.*

These periodic meetings included a review, by the assistant administrator responsible for CASH-IRE, of departments operating at less than 80 per cent efficiency and, during the second and third incentive years, a review, by an administrative resident, of possible areas of improvement. The CEO reported these activities as specific attempts to improve labor productivity — ones that were carried on throughout the life of the experiment.

During the interview, the CEO reported that the Medical Record, Dietary, and Laboratory Department heads had complained to him that they were not able to control their workloads to the extent they believed had been expected of them. The CEO said that, once he had explained to them that no layoffs would be made and that standards would be reviewed on the basis of average workloads for their departments, these complaints were resolved. The CEO stated that he had tried to satisfy departments with complaints where possible.

When asked for an explanation of the factors that most contributed to the overall decline in performance index at Hospital S, the CEO cited the decrease in the number of days of patient care as the major reason. The CEO related the significant decline in productivity in the Nursing Service to the decrease in the number of patient days. He indicated that this had been a major factor in the overall decline. (It should be noted here that the CEO's explanation of fewer patient days for the decline in overall performance neither corresponds with a later explanation given by him for the decline in the performance of the Nursing Service nor adequately accounts for the significant declines in the performance of non-nursing functions.) The CEO went on to say that the inability of the assistant administrator responsible for CASH-IRE and the director of nursing to work together to improve nurse staffing and to adjust standards hindered improvement in the performance index, once that index had declined. In response to questions concerning the decline in productivity of most departments in Hospital S, the CEO's explanations centered on the image change.

The CEO was asked to comment on the performance of each of the four departments singled out for indepth study. With respect to the *Administrative Department*, the CEO said that understaffing was the reason for its above-average management effectiveness and its high performance index. Although the CEO considered that the CASH-computed 17,520 standard hours were needed for the operation of the department, he reported that the ceiling set by the county required Hospital S to operate at approximately half of that level. The increase in actual hours — from 8,268 in the first incentive year to 9,317 in the second incentive year to 9,430 in the third incentive year — resulted from the temporary addition of an administrative resident, whose residency overlapped two of the incentive years.

The decline in the performance index of the *Business Office* — from a high of 110 per cent in the second incentive year to 74 per cent in the third incentive year — was described by the CEO as having been the result of actions taken by him to improve departmental effectiveness. The county policy of not billing all patients had been changed in the third incentive year of the experiment. This change resulted in an increased accounts receivable workload. To accommodate this workload, the CEO said he had authorized an increase of 7.5 persons in the Business Office. In addition, he had authorized increases in personnel in computer-related collection activities associated with Medi-Cal reimbursement. He indicated that all of these changes had been related to changed program goals in the Business Office — goals that CASH had not been made aware of. According to the CEO, the Business Office manager had been receptive to change and was highly innovative. The CEO emphasized, however, that the staffing changes that had occurred in this department had not been the result of suggestions or comments from the Business Office manager but had, instead, been changes imposed by the administration.

The CEO said he believed management effectiveness in *Nursing Service* to be good, as evidenced by the fact that the director of nursing had been able to respond to changes in services demands placed upon the department. The CEO pointed out, however, that this individual had not been sympathetic toward the LPC program because she had little faith in the accuracy of the standards developed for Hospital S. The CEO reasoned that an increase in special nursing services — not adjusted for by CASH — had accounted for the decline in the performance of the Nursing Service. He cited increases in such services as kidney dialysis, neurosurgery, child psychiatry, and other psychiatric units. The interviewee also noted that the hospital's obligation to participate in the Short-Doyle Psychiatric Program — a state-legislated program necessitating an increase in the intensity of psychiatric nursing — had had a significant impact on increasing nursing hours worked.

(While the CEO indicated that CASH had been made aware of the departmental changes made by the director of nursing, he said no standards changes had been initiated by CASH in relation to them. The CEO's implication that the increase in special nursing services had caused a decline in performance differed from his earlier statement that declining census had caused the decrease in performance index. It should be noted also that the increase in special nursing services mentioned had been reviewed by CASH and is discussed elsewhere in this report.)

The CEO indicated that he thought neither the explanation given by the director of nursing for the decline in performance index — a change from being understaffed during the base and first incentive years to being appropriately staffed in later years — nor the explanation of the assistant administrator — that nursing was "slacking off" — were adequate. He said he believed that the truth was somewhere in the middle.

The CEO characterized the *Pharmacy Department* as being "more management-oriented" and more cost-conscious than most other departments. According to the CEO, the chief pharmacist not only was management oriented but also had a positive attitude toward innovation and toward the accuracy of the CASH standards. The CEO stated that the overall decline in the performance of the Pharmacy Department had resulted from an increase in hours of service because of increased activity in the emergency room and the outpatient service. He said he believed that the pharmacy standards should have been adjusted to accommodate the handling of a greater proportion of outpatient prescriptions. Outpatient prescriptions were reported to require more time per unit than inpatient prescriptions. The CEO did not specify at what point in the experiment pharmacy hours were increased. However, the interviewer assumed, from data recorded on pharmacy hours, that a gradual increase in activity had occurred over the life of the experiment.

The fact that Hospital S was in the process of attempting to change its image from that of the traditional public hospital to that of a community hospital was believed by the interviewee to have impeded more active involvement in the experiment and any extensive use of LPC data.

The CEO reported that attempts to change employee attitudes had inhibited improvement in performance. The concept of making personnel more responsive to patient needs, more community oriented, and less set in their civil service attitudes had not been conducive, he said, to the implementation of performance standards that were often identified with bureaucratic government organizations. In view of the foregoing, the CEO admitted that, although he had supported the LPC program, he had not enforced labor performance standards to the degree expected by CASH.

Although he had been somewhat motivated by the financial incentive, the CEO said, he believed that "hospitals should operate effectively without pay. . . .There ought to be enough personal incentive to service the community without some type of incentive reward." The CEO added that, while incentive reimbursement and the improvement of labor productivity through the use of standards did not hurt, "motivation from within" was more important.

According to the CEO, no hospital-wide plan had been made for the use of any possible financial award. Because of its county charter, he said, any reward accruing to the hospital would have been placed in general operating accounts. The CEO admitted that, although he would have liked to earn an incentive award, he recognized that his hospital's relatively high base-year performance index precluded any real possibility of such an award. The CEO indicated that he had used the LPC program primarily to substantiate work load and volume trends, rather than using specific labor standards that relate volume activity to manhour requirements. Because Hospital S had been a CASH member prior to the onset of CASH-IRE, the CEO could identify no way in which the experiment per se had had any value in Hospital S.

Assistant Administrator

The assistant administrator interviewed during this project had held his position since 1966. During the interview, he reported that he had been familiar with CASH services since he had accepted the position at Hospital S.

The interviewee's responses to questions about efficiency and effectiveness levels in the hospital industry and at Hospital S were unclear. Moreover, his answers suggested his confusion about, or lack of understanding of, these concepts. Nevertheless, the interviewee did express a positive attitude toward the value of industrial engineering techniques in reducing hospital costs in general, as well as in reducing costs in Hospital S. The assistant administrator reported that the hospital's overall decline in performance resulted from the turnover

in CASH representatives and the resulting loss of continuity in technical studies — hence the failure of CASH to adjust standards associated with changes in departmental workload. The interviewee noted that three CASH representatives had been responsible for Hospital S during the experiment; six had been responsible for it during the previous seven years.

The interviewee reported that the LPC program had had little effect on performance because the information developed had not usually been reported back to department heads and supervisory personnel. He said he believed this to be the case in other participating hospitals as well. According to the assistant administrator, he was the only individual in the hospital who was motivated by the experiment's financial incentive. He indicated that there had been little concern about finances at Hospital S, inasmuch as it was a county facility and funding had never been a significant problem.

When asked to comment on the performance of the Nursing Service, the Pharmacy Department, and the Business Office over the life of the experiment, the interviewee made the following comments.

The director of nursing, he said, was an ineffective manager. Moreover, she had not understood how CASH standards were developed, and she had not been receptive to the experiment. When asked if he had attempted to instruct the director of nursing in the use of CASH data to improve performance, the assistant administrator said he had not done so because of her general hostility toward standards and her unwillingness to learn about their utility.

Nursing's decline in performance, the interviewee explained, resulted from overstaffing in certain areas. An increase in the average daily census of psychiatric patients, a proportionately greater increase in nurse staffing in that service, and the counting of chronic dialysis patient treatments as inpatient days were cited by the assistant administrator as reasons for the overstaffing and hence for the lower performance index.

(The interviewer found that recommended staffing levels had been provided by CASH for these service areas in the base year. The assistant administrator's explanation for the declining performance in the Nursing Service appears to have resulted from his misunderstanding of the LPC methodology. The interviewer later learned that the director of nursing had, prior to the onset of CASH-IRE, worked with the CASH representative on specific nursing programs. As a result, she had a fundamental understanding of the design and utility of CASH standards, despite the assistant administrator's description of her response to the program. The assistant administrator's own misunderstanding of the LPC program can be seen in his comments about dialysis treatments, which had been accounted for by CASH and therefore could not be considered a cause of overstaffing. The interviewee did not mention any other new or expanded nursing services that might have accounted for the decline in the Nursing Service's performance index.)

According to the interviewee, the chief pharmacist was an effective manager, and the department was receptive to innovation. The assistant administrator blamed poor development of standards, particularly as they related to outpatient activity, for the general decline in the pharmacy's performance. He said he believed that, as pharmacy activity had become more outpatient oriented, standards should have reflected this change and they did not.

The interviewee reported that the Business Office manager had been effective and that he had been receptive to CASH-IRE. The interviewee described the Business Office manager as generally unfamiliar with the LPC program. He explained that this was because the department had undergone significant changes in activity during the last incentive year and little attention had been paid to the LPC program. (The Business Office manager had been appointed to his position toward the end of the second incentive year.)

Since operational responsibility for the LPC program had been delegated to the assistant administrator, he was asked to describe the procedure followed when the monthly LPC reports were received. He stated that reports generally were received and reviewed by himself and by the CEO; most department heads did not receive them. Curiously, the interviewee could not explain why department heads, with the exception of the director of nursing and the Business Office manager, did not receive LPC reports.

(*Interviewer's note*: This failure to distribute LPC reports to department heads, in combination with earlier statements by the assistant administrator that the CASH program had failed because of its inability to provide feedback at the operational level, represents a major conflict in philosophy and in utilization of the CASH LPC program. It points out, again, the interviewee's misunderstanding of the objectives and use of the LPC program.)

In response to questions about the overall decline of the hospital's performance index, the assistant administrator cited the following: (1) the higher employee-patient ratio, resulting from a change in patient mix, for which standards had not been modified; (2) the failure of CASH to make standards changes as requested (in some cases because the representative had been transferred before he could make the changes); (3) little motivation among department heads for improving performance, and (4) the CEO's downplaying of the importance of the LPC program and the experiment.

Hospital Personnel by Functional Department

Business Office

The Business Office in Hospital S maintained a greater than 100 per cent performance index during the base, first, and second incentive years. Its performance index declined, however, from 110 per cent in the second incentive year to 74 per cent in the third incentive year.

Because the Business Office manager was not available for interview on the pre-arranged date, the assistant administrator arranged for an interview with the senior accountant, who had held his position for approximately nine years and was familiar with all aspects of the department.

Although the senior accountant said he was aware that the hospital had been a CASH member before the experiment, he declined to answer attitudinal questions about the department's receptivity to the LPC program and about operating costs, efficiency, effectiveness, and quality of care. Because these questions were subjective in nature, he said he thought they should be answered by the Business Office manager. Questions concerning reasons for the decline in the Business Office's performance index did, however, elicit a response.

When asked why performance declined in the last year of the experiment, the senior accountant reported that the department had taken on many new responsibilities that had not been accounted for in the development of the standards. He said that there had been a totally revised Medi-Cal program that required additional manhours in the Business Office. Moreover, new requirements for reporting Medicare patients also increased manhours. The concerted effort by department personnel to bill all patients in a timely manner and to keep more accurate records of accounts receivable was cited by the senior accountant as the major reason for increased manhours in the department and the concomitant decline in performance index. The senior accountant noted that the department had increased staffing by approximately eight full-time equivalent personnel in order to meet the responsibilities just described. He said that, as far as he knew, the CASH representative had not been notified of either the new responsibilities or the increased staffing.

The senior accountant stated that both he and the Business Office manager had ignored the LPC program during the last incentive year of the experiment. It was at that time, he said, that the administration-imposed changes in Business Office staffing had occurred. During all three incentive years, he stated, there had been no motivation in his department for earning an incentive award.

Nursing Service

Both the director of nursing and the assistant director of nursing participated in the on-site interview. The director, who had held her position for four and one-half years, indicated that she had been aware of her hospital's involvement with CASH prior to the onset of the experiment. She said the CASH representative had conducted some special nursing studies in the department before IRE. While the interviewee said that she had believed, initially, that CASH had potential for increasing efficiency and effectiveness at both Hospital S and other hospitals — particularly in the area of staffing — she said she had become disappointed in it. She reported that the CASH program could have been a valuable management tool for her. However, she said it had not lived up to her expectation that through the program industrial engineering techniques could be applied to the Nursing Service.

The director of nursing went on to explain that she believed the LPC program had not been used appropriately in the Nursing Service by either the assistant administrator or the CASH representative. She stated that the assistant administrator had told other departments that nursing was an example of how performance levels decline when standards are not strictly adhered to. The director of nursing said the humiliation of having the Nursing Service singled out as the "whipping boy" of the hospital had caused her to have less faith in the value of the LPC program. She particularly lost faith, she said, because she thought that many of the nursing standards had been inappropriate in the first place and had become less appropriate as the mix of patients changed over the life of the experiment.

The interviewee said she also believed that the LPC program had been inadequately monitored by CASH representatives. She reported that one CASH representative had been uncooperative in responding to requests to review nursing standards. Moreover, she stated that the change in representatives had made program continuity difficult. She commented that, when standards had finally been adjusted to reflect nursing program changes, the experiment was over. (The interviewer discovered later that nursing standard adjustments had been made when a chronic disease unit had been converted to a medical/surgical unit. However, no subsequent change had been made in medical/surgical standards.)

In an attempt to summarize why the performance index in the Nursing Service declined from a high of 104 per cent in the base year to 89 per cent at the end of the experiment, the director of nursing explained that she had given the LPC program progessively less credence in staffing because, as stated, she believed it had been inappropriately applied in nursing.

The director of nursing also identified a number of specific actions that may have accounted for the decline in her department's performance index. The CASH "staffing guide" had not been updated or revised to reflect additions to nursing responsibilities in the dialysis, neurosurgery, nursery, or psychiatric units, she said. She reported also that the assistant administrator had been uncooperative in providing feedback about the performance of her department. Moreover, he had been unable to explain adequately the bases upon which standards had been developed. The director of nursing said that, as a result, she had maintained little confidence in the LPC and staffed according to traditional procedures of meeting coverage needs and physician demands. She said she had submitted justifications of her actions to the hospital's CEO. The interviewee also stated that the financial reward offered in the experiment had given her no motivation to improve productivity.

(*Interviewer's Note:* When the director of nursing's complaints about CASH's failure to adjust nursing standards in dialysis, neurosurgery, nursery, and physchiatric units were reviewed, conflicting evidence was found by the interviewer. CASH had established nursing standards for the units and had made staffing recommendations for psychiatric and dialysis units in the base year. In the second incentive year, separate standards had been established for three categories of patient types in the nursery and two categories of patient types in neurosurgery. Nursing standards had been reviewed by CASH, and the representative had found no valid reason for making adjustments thereafter.)

Pharmacy Department

The performance index in the Pharmacy Department declined in all three years of the experiment — from a high of 88 per cent in the base year to 86 per cent, 82 per cent, and 65 per cent.

The chief pharmacist, who had held his position for 13 years, was responsible for inpatient, outpatient, and two satellite outpatient pharmacies, as well as for drugs supplied by Hospital S to other county facilities.

The interviewee said he had been unaware of the hospital's pre-IRE involvement with CASH. When questioned about his perceptions of efficiency and effectiveness in his department and about the potential for using CASH industrial engineering techniques to improve productivity, the chief pharmacist explained that he was generally unfamiliar with the philosophy and techniques of the LPC program. Thus, he could neither draw judgments about the program's potential value nor develop program goals associated with it. He claimed to have received no aid from CASH representatives over the life of the experiment. The interviewee noted that, during the experiment, he had received a "month-end statistic," as he put it, but had had no idea of what it meant.

(It should be noted that, in an earlier interview, the assistant administrator indicated that LPC reports had not been distributed to most department heads for review. The interviewer discovered, subsequently, that the chief pharmacist had been receiving inhouse performance reports prepared by the assistant administrator. The interviewer was unable to ascertain precisely what inhouse reporting procedure had been used in developing this report or whether LPC data had provided the basis for it.)

The chief pharmacist reported that he thought too much time had been spent by the administration on labor standards and performance in the Nursing Service and not enough time in his department or in other ancillary departments. He said he did not know how his department's efficiency rated with that of other departments in the hospital or of other hospital pharmacies. He said, however, that he believed the general level of efficiency in the pharmacy was high. He reported, in fact, that he could probably absorb from 10 to 15 per cent more volume with no additional staffing. He stated

that, from what he knew of industrial engineering techniques, they could be effectively applied to hospitals and to his particular pharmacy.

The chief pharmacist expressed surprise when informed of his department's decline in performance. He stated he thought that calculations of the department's performance index, as explained to him by the interviewer, did not accurately reflect the operational situation, particularly since changes had occurred since the beginning of the experiment. The interviewee noted other reasons for the decline in productivity. These included increased quality control procedures related to dispensing drugs; an increase in the number of hours worked in the pharmacy, which was related to an increase in paperwork required for Medi-Cal patients, and a significant change in the mix of inpatient- and outpatient-related services. The chief pharmacist could offer no conclusive reasons for the decline in the Pharmacy Department's performance index, other than the general explanation that his department had been given little attention during the experiment — both by the assistant administrator and by the CASH representative — and that there had been changes in department activity and workload.

(It is noted that the interviewer reviewed data related to the Pharmacy Department for all three experimental years and discovered a number of errors in reporting inpatient and outpatient volumes and related standard hour allowances. In at least one case, inpatient and outpatient prescription volumes had, inadvertently, been transposed and, as a result, the performance index of the inpatient unit had declined. In addition, volumes reported on CASH's Annual Productivity Questionnaires had not been maintained in incentive calculation worksheets for at least two reporting years. In summary, the interviewer found good reason to believe that reporting of volume in the pharmacy had been inaccurate and not properly accounted for in performance index or incentive calculations.)

CASH Representative

As stated, three CASH representatives had been assigned to Hospital S during the life of the experiment. Consultant reassignments had been associated, in the first case, with a change in geographic assignments and, in the last two cases, with the termination of employment of the CASH representatives. The CASH representative assigned to the hospital for a year and a half of the experiment was interviewed.

The interviewee prefaced the discussion with the statement, "Basically, when you start so high, where else do you go but down?" He admitted that he had worked only to maintain the high performance index of the hospital and had been able to do little to help the hospital earn an incentive payment.

The CASH representative noted that the CEO had been familiar with the LPC program because the hospital had been a member of CASH prior to the experiment. Although he said the CEO had cooperated with IRE orientation and implementation, the interviewee indicated that the CEO had not been overly excited about the potential for financial rewards. Moreover, he had delegated most of the operational responsibilities for IRE to an assistant administrator.

The interviewee described the CEO as a community-oriented individual who delegated internal operational authority to the assistant administrator. The CEO's only operational links were said to be with the Nursing Service and with physician-related services. The CASH representative explained that the director of nursing did not report to the assistant administrator because of personality and philosophy conflicts between them. These differences were reported to have extended to their views of the LPC program. The CASH representative corroborated the CEO's earlier comment that the director of nursing and the assistant administrator did not work together in an attempt to improve the performance index in nursing.

With respect to the use of LPC data, the interviewee reported that it had been used, to some extent, to verify much of the information received from county government statistical services. The representative was unsure of how much weight had been given by the assistant administrator to LPC data as compared to other statistical sources.

The interviewee was asked about the performance of the departments singled out for indepth study.

The relatively high level of performance in the *Administration Department* had not been investigated by the CASH representative. In explanation, he reported that standards developed for this department had not been a measured index; rather, they represented an average developed from hospitals of similar size. Thus, he said, CASH had no way of developing a "pure work standard" for the department to judge adequately if it was performing at an optimum level.

With respect to the *Business Office*, he reported that a computer program had been installed that had required the operation of parallel systems for a number of months. According to the CASH representative, no standards revisions had been made in this area — hence, the performance index declined. Since he had not been assigned to Hospital S during the last incentive year, the interviewee said he was unaware of the significant decline in performance index in the Business Office during this period. As a result, the intervewer did not pursue this conversation.

In response to questions about the *Nursing Service*, the CASH representative said that, although the Nursing Service wanted to increase staffing, he did not believe it needed more personnel. He explained that he had attempted to maintain base-year staffing, except when the director of nursing could justify increases. The CASH representative said he had spent much time with the director of nursing in an attempt to show her how she could arrange schedules and apply CASH standards to nursing cost centers.

The decline in occupancy at Hospital S and the increased number of admissions did not result in an adjustment in standards, the interviewee said, because, as far as he knew, the mix of medical/surgical patient days had remained approximately the same. According to the CASH representative, standards had been adjusted as a result of changes that included the elimination of the TB and chronic care units. In addition, the CASH representative stated that he had reviewed nursing requirements for the psychiatric and dialysis units but saw no need for a change in standards since the job functions and the type of patients had remained basically the same. The CASH representative could not comment on standards changes for neurosurgery or nursery units since these adjustments had been made after his assignment at Hospital S had ended. CASH records indicated that similar attention had been given by the later CASH representative to neurosurgery and nursery unit standards.

The interviewee described the decline in performance index in the Nursing Service as resulting from the ability of the director of nursing to convince the CEO of her belief that more nurses were necessary, even though neither the CASH representative nor the assistant administrator agreed.

According to the CASH representative, the increase in the number of outpatient and emergency room prescriptions called for a readjustment of standards in the *Pharmacy Department*. The readjustments, however, had not been undertaken. The representative admitted that "there is fair justification for the Pharmacy complaint that it was not given a fair shake in outpatient prescriptions." The CASH representative also indicated that a total review of LPC standards should have been made in the Pharmacy Department. He cited time limitations, the turnover of CASH representatives, and the hospital's failure to report the changes that took place in the Pharmacy as reasons why standards adjustments had not been made. The CASH representative reported that he had been unaware of any errors made in calculating performance indices that had resulted from inaccurate reporting of volume in the Pharmacy.

In summary, the CASH representative stated that his responsibility toward Hospital S was to "hold the line" rather than to recommend any major staffing changes. The CASH representative indicated that a review of the LPC program standards should have been conducted in selected departments at Hospital S. He indicated that the failure to do so was in part the fault of CASH because of the loss of continuity between CASH consultants and in part the fault of the hospital because of its failure to report significant operational changes.

SUMMARY AND CONCLUSIONS

The following summary and conclusions are based on an indepth review of LPC data for Hospital S and on the interviews held with hospital personnel and the CASH representative.

Summary

The performance index for Hospital S declined in each of the three years of CASH-IRE — from a high of 102 per cent in the base year to 100 per cent, 93 per cent, and 89 per cent. This decline resulted in a cumulative net total loss of $316,650 for the experiment. Although patient days at Hospital S declined by about 10,000 between the base year and the third incentive year, inpatient standard hours increased from 1,139,109 to 1,159,855. The decline in patient days and the increase in standard hours reflected a higher admission rate and shorter average length of stay. This situation resulted from a concerted effort by county and hospital officials to change the mix of patients to reflect the hospital's trend toward providing more acute care and more outpatient services.

Two key factors had overriding significance in relation to the hospital's performance during the

experiment. The first was the effort by the hospital to change its image to that of a community hospital. This effort was reflected in the aforementioned change in patient mix and in increased budgets as well. The second factor was the general misunderstanding of the LPC program and its data. This misunderstanding became apparent as the interviewer attempted to elicit a clear understanding of what had happened to cause the significant decline in performance. Internal philosophical conflicts among key staff personnel, turnover of CASH representatives, and the relatively high performance index during the base year were all offered as explanations, by key personnel and by the CASH representative, for the decline in the hospital's performance index. Comments made by the CEO and by the CASH representative suggested that the declining performance had been expected by these individuals.

The chief executive officer of Hospital S showed a mildly positive attitude toward CASH-IRE. His belief about the benefit of industrial engineering techniques was also mildly positive. However, he seemed more concerned with the "human" elements of administration than with effectiveness and efficiency levels. The CEO stated that he had attempted to strike a balance between the rigid implementation of LPC standards, endorsed by the assistant administrator, and the traditional methods, espoused particularly by the director of nursing — i.e., to staff at levels judged necessary to provide a high quality of patient care. The CEO reported that the financial incentive had provided no motivation to improve productivity at Hospital S. He described the assistant administrator as interested in scientific management techniques but not motivated by the potential of earning a financial reward. (It should be noted that, in his interview, the assistant administrator stated he was the only one in the hospital motivated by the incentive.)

Subsequent interviews with the director of nursing, the assistant administrator, and the CASH representative reinforced the interviewer's impression of the management roles assumed by these persons — roles described by the CEO. The interviews also tended to confirm the interviewer's finding that key management officials at the hospital had been unfamiliar with LPC methodology.

The *Business Office* at Hospital S demonstrated a relatively high performance index of 102 per cent in the base year, followed by indices of 101 per cent, 110 per cent, and 74 per cent. Administration pressure to reduce accounts receivable "at all costs" and revised reporting requirements for Medicare and Medi-Cal patients were described by the CEO, the assistant administrator, and the department representative as contributing to the decline of this department's performance index. The LPC program was considered unimportant in this department, especially during the last incentive year. According to the senior accountant, no feedback concerning performance was received.

In the *Nursing Service*, the director of nursing reported that participation in the LPC program had resulted in her humiliation and in undue interference in the operation of the department by the assistant administrator. The CEO reported that the overall decline in performance in nursing, from a high of 104 per cent to a final 89 per cent, had been a result of increased staffing, in response to a change in patient mix. Increased staffing levels were thought, by the CEO, to be generally appropriate. According to the CASH representative, the need for standards adjustments for most of the claimed changes in nursing activity was reviewed and accounted for in performance index calculations, where deemed appropriate. However, adjustments were not made to the complete satisfaction of the director of nursing. The ability of the director of nursing to convince the CEO that CASH had failed to change nursing standards to levels considered appropriate by her and the assumption by CASH that medical/surgical patient acuity levels had not changed are seen to have been the major reasons for the decline in performance in this department.

The decline in the *Pharmacy Department's* performance index — from 88 per cent in the base year to 86 per cent, 82 per cent, and 65 per cent — was described as resulting from LPC standards that had not reflected actual workloads. It was the belief of the chief executive officer and of the chief pharmacist that control-period data no longer reflected the mix of outpatient and inpatient activity and that this change in activity had affected the performance index. The representative admitted a lack of follow-up by CASH in this department because of the turnover in representatives during the experiment. The chief pharmacist had not regularly received LPC reports for his department, and much of what he knew about its performance had been reported to him by the assistant administrator. It was also discovered that significant errors had occurred in the reporting of the volume of outpatient prescriptions, which may have affected incentive calculations.

Hospital S was one among 18 hospitals in the experiment that experienced a cumulative incentive loss during CASH-IRE. Its loss of $316,650 is reflective of a progressively declining performance index. Nevertheless, for the base year and for the first and second incentive years, Hospital S demonstrated the highest average performance index of all experimental hospitals. It had the second highest performance index for the third incentive year.

Conclusions

The preceding discussion of Hospital S provides the basis for concluding that:

1. The financial incentive offered by CASH-IRE provided no motivation for either the CEO or key staff to improve hospital performance indices during the life of the experiment.

2. Many internal and external (to the hospital) factors kept the hospital from either maintaining or improving pre-experiment productivity levels.

3. CASH representatives either did not adequately orient hospital personnel to reporting changes that might have influenced departmental performance or did not personally monitor activities to the extent necessary to detect these changes. Hence, the overall performance index of Hospital S may not truly reflect performance during the experiment.

4. The LPC program and its data were not understood or used to improve labor productivity by the hospital's CEO. Although the assistant administrator had utilized LPC information, his understanding of the program, and hence his use of it, was not in accord with the procedures outlined by CASH.

5. The LPC program and its data were neither understood nor used at the department head level — except possibly in the Nursing Service. There was little use of LPC data in Hospital S.

The overriding effects of attempts to alter the image of Hospital S, from a traditional public to a community-oriented institution, may be interpreted as a major factor causing the decline in performance index in this hospital. Other contributing factors included the possibility that LPC standards failed to reflect changes in patient mix, the changes in CASH representatives, and a staff traditionally oriented to budget-related staffing systems and unfamiliar with the LPC program. The image change and possibly the other factors identified in this case study may be indicative of factors that produced similar outcomes in other participating county hospitals.

CASE STUDY: HOSPITAL V

INTRODUCTION

Hospital V is a nonprofit, acute-care hospital, located in a coastal community south of a large urban area. At the onset of the Incentive Reimbursement Experiment (IRE), the hospital was licensed to operate 140 beds. Subsequently, it engaged in a construction program, and it had applied for a license to operate 207 beds by the time the experiment was completed.

During the course of this experiment, conducted by the Commission for Administrative Services in Hospitals (CASH), Hospital V received an incentive payment in each of the three incentive years.

Presentation of CASH-IRE

At the beginning of the experiment, the chief executive officer (CEO) and the CASH representative assigned to Hospital V conducted departmental and medical staff orientation meetings to explain the CASH Labor Performance Control program (not the CASH-IRE program, per se). There was no record of any further orientation or training activities related to the experiment.

During the orientation sessions, both department heads and medical staff members were told that the LPC was a *mandatory* program and that the hospital was *required* to take the steps necessary to improve its performance index. Neither group was informed of the experimental nature of the program it was participating in, nor was it made aware of the financial incentive offered for improved performance.

Statistical Summary of Results

Hospital V earned an incentive payment in each of the three incentive years of the experiment, for a total of $86,073. (For the formula used in computing incentive reimbursements, refer to *Incentive Reimbursement Experiment*, Blue Cross of Southern California, 1973.) During this period, its overall performance index (PI) increased from 75 per cent in the base year to 79 by the end of the third incentive year. In the first year, the hospital improved its performance index approximately three percentage points to 78 per cent, earning an incentive payment of $47,873 (see Table 1). This increase in productivity was accomplished during a year of declining census — approximately 1,000 fewer days had been recorded in the first year than in the base year.

Table 1. Total Hospital Summary Performance Indicators, by Incentive Experiment Years, and Computed Incentive Gains (Losses)

	First Year		Second Year		Third Year	
Item	*Base Year*	*Incentive Year*	*Previous Year*	*Incentive Year*	*Previous Year*	*Incentive Year*
Performance index*	74.54%	77.71%	78.06%	77.71%	77.35%	79.19%
Inpatient payroll*	$2,658,015	$2,541,821	$2,632,720	$2,589,241	$3,084,420	$3,015,202
Inpatient actual hours*	733,158	685,166	674,645	669,593	669,593	755,982
Inpatient standard hours*	546,510	532,443	526,609	520,328	517,919	598,672
Patient days	45,002	43,979	43,979	43,031	43,031	46,287
Occupancy	88%	86%	86%	84%	84%	76%

	First Year	Second Year	Third Year
Gross Savings (Loss)	$116,194	$43,479	$69,218
Total Incentive Gain (Loss)	$81,415	$33,287	$33,190
Net Total Award (Loss)	$47,873	$19,161	$19,039

**Previous year figures reflect adjustments related to wage differences or to changes in volume or standard hours.*

In the second year of the experiment, the hospital earned a payment of $19,161, also in a year of declining census — a decline of almost the same magnitude as that of the previous year. It is interesting to note that Hospital V's second payment is one of several instances in which an incentive payment was earned despite a slight decline in performance index. In Hospital V's case, the decline was 0.4 percentage points. The receipt of an incentive payment despite this decline was explained by a change in the ratio of hours worked to hours paid during the second year.

In the third year of the experiment, the hospital began to occupy its new facility. However, despite an increase of approximately 3,000 patient days, the occupancy, based on the new bed complement, dropped from 84 to 76 per cent. On the other hand, the performance index improved from 77 per cent to 79 per cent, and an incentive payment of $19,039 was earned.

Selection as Interview Site

Hospital V was selected, initially, as an interview site for two basic reasons:

1. It was one of four experimental, nonprofit community hospitals in a large urban area that was in the 0 to 249 bed size category.

2. It demonstrated a three percentage point improvement in performance index during the first incentive year, receiving an incentive award of $47,873.

Hospital V was also one of two participating hospitals in which interviews were conducted prior to the completion of the experiment. In part, the purpose of the early interviews was to pre-test the survey instrument and to gain insight into what might be expected in future site visits. The first site visit to Hospital V was conducted toward the end of the second incentive year of the experiment; it was followed by an interview with the CASH representative assigned to the hospital. At the time of these first interviews, complete experimental data were available only for the first incentive year of the experiment. Accordingly, it was decided that these interviews would focus on the hospital's performance during that year and that follow-up interviews, conducted after completion of the experiment, would focus on the second and third incentive years.

Influencing Factors

In Hospital V, as in other participating hospitals, a number of factors were believed to have influenced experimental results. Among these factors were the negative attitude on the part of the director of nursing toward CASH and its programs and the extensive construction and renovation program initiated by the hospital after the experiment began.

Hospital V had not been a CASH member prior to the onset of CASH-IRE. Moreover, the application of industrial engineering techniques to the hospital and to its component departments was a new experience. Ostensibly, then, the experiment should not have met with bias on the part of the administration or on the part of any major department heads. There was, however, one exception to this lack of bias. The director of nursing, according to the chief executive officer, harbored a strong negative attitude toward the CASH organization and its programs — an attitude that significantly affected the way in which CASH-IRE was received by the Nursing Department.

In November, 1969, Hospital V undertook an extensive construction and renovation program. This program called for the addition of 80,000 square feet. It called for a new CCU and ICU, as well as for new areas for housekeeping, stores, CSR, linen, and printing, and for the renovation of space that housed inhalation therapy, EMG, ECG, and pulmonary function services. Since the first incentive year for this hospital began January 1, 1970, the construction and renovation program was actively under way during the incentive years of the experiment.

It was to be expected that such a major construction program would significantly affect hospital operations and would result in changes in standard hours for the departments involved. Inasmuch as major add-on construction typically creates a great amount of dust and debris, more work would be expected, for example, for housekeeping personnel. Certain activities would have to be performed in makeshift space or areas. Alterations might impede traffic flow. However, a review of the data for the base year and for the first incentive year indicates that no allowances were made to account for possible construction-related extra hours worked. (It is interesting to note that, despite construction problems, the hospital received an incentive award that first year.)

Indepth Studies

Upon selecting Hospital V as an interview site, the evaluation team reviewed the first incentive-year performance of the hospital's individual departments. Four were then selected for indepth data gathering and review:

- *Admitting Department*, which demonstrated a major increase in performance index;
- *Nursing Department*, which recorded a minor improvement in performance index;
- *PBX Department*, which recorded a major decline in performance index; and
- *Radiology Department*, which also recorded a major decline.

Tables 2 to 5 profile the performance of these departments throughout the experiment.

EVALUATION INTERVIEWS

The assistant director of CASH made the initial contact with Hospital V. He explained the purpose of the evaluation and its relation to the experiment. The chief executive officer of the hospital, who agreed to participate in the interview phase of the evaluation, was subsequently contacted by the interviewer. He was most cooperative in arranging meetings with staff members and in offering his own personal time.

Originally, interviews were planned with the following hospital personnel: the chief executive officer, the chief of staff, the director of nursing, a head nurse, a staff nurse, the chief admitting officer, the chief of PBX, the director of radiology, the chief radiology technician, and the assistant administrator responsible for CASH-IRE. However, since a number of personnel changes had occured between the onset of IRE and the first interviews, this list had to be altered in order to focus the discussion on the first incentive year. The altered list included: the chief executive officer, the chief of staff, the assistant administrator responsible for CASH-IRE, the director of admitting, two head nurses, and the director of radiology. An interview was also arranged with the CASH representative assigned to the hospital. It should be noted that the interview with the assistant administrator responsible for CASH-IRE was held after the experiment was completed, as was a follow-up interview with the CASH representative.

Summaries of all interviews follow.

Chief Executive Officer

The hospital's chief executive officer had assumed that position approximately five years prior to the onset of CASH-IRE. During the experiment, he had retained ultimate administrative responsibility for the program but had delegated line responsibility to an assistant administrator. He perceived his own role as selling the program to department heads, supporting it, reviewing monthly reports, and disseminating praise at monthly departmental meetings. The CEO described the assistant administrator's CASH-IRE responsibilities as those of restricting departments to a minimum number of employees, discussing monthly reports with department heads, and following through with department heads in whose areas improvements could be made. (These findings prompted the evaluation team to increase the number of questions asked of assistant administrators in other hospitals and to ask CEOs more questions about the functions and activities of those assistant administrators with respect to CASH-IRE.) The CEO estimated that less than five per cent of his time, and from five to ten per cent of the assistant administrator's time, was spent on IRE-related activities.

The CEO's attitudes toward hospital operating costs, levels of efficiency and effectiveness in hospitals, and the applicability of industrial engineering techniques to hospital operations were explored. The discussion focused not only on Hospital V but also on the hospital industry per se.

Although his responses to specific attitudinal questions indicated some conflict, a common theme emerged. Areas of conflict included the CEO's belief that his hospital's operating costs were about what they should be, even though he indicated that the hospital's overall level of efficiency and its efficiency with respect to manpower utilization were less than adequate.

The conflict was further manifested in a comparison of responses to questions regarding cost, efficiency, and effectiveness in the hospital industry with responses concerning those same characteristics in Hospital V. As previously stated, the CEO said he believed his costs to be about right but that costs in the hospital industry were higher than they should be. In contrast, the CEO stated that he believed that the general level of efficiency and the level of efficiency with respect to manpower utilization were less than adequate in both his institution and the hospital industry. Moreover, the CEO perceived the effective application of industrial engineering techniques as having little or

Table 2. Departmental Summary Performance Indicators – Base, First, Second, and Third Incentive Years – Admitting

Item	Base Year	Incentive Years First	Second	Third
Performance index	38%	79%	70%	47%
Admissions	7,551	7,174	6,820	7,154
Standard hours	17,178	16,639	11,480	11,962
Actual hours	45,122	21,080	16,311	25,686
FTE variance*	(14.70)	(2.33)	(2.54)	(7.22)

Table 3. Departmental Summary Performance Indicators – Base, First, Second, and Third Incentive Years – Nursing

Item	Base Year	Incentive Years First	Second	Third
Performance index	80%	82%	79%	82%
Patient days	45,002	43,979	43,031	46,287
Standard hours	234,507	231,515	223,319	246,937
Actual hours	294,130	283,707	282,090	301,450
FTE variance*	(31.38)	(27.46)	(30.93)	(28.69)

Table 4. Departmental Summary Performance Indicators – Base, First, Second, and Third Incentive Years – PBX

Item	Base Year	Incentive Years First	Second	Third
Performance index	114%	68%	106%	98%
Calendar days	365	365	365	366
Standard hours	6,661	6,661	11,315	11,346
Actual hours	5,818	9,733	10,689	11,536
FTE variance*	.44	(1.61)	.32	(.10)

Table 5. Departmental Summary Performance Indicators – Base, First, Second, and Third Incentive Years – Radiology

Item	Base Year	Incentive Years First	Second	Third
Performance Index	105%	65%	66%	64%
Examinations	8,380	8,084	9,157	11,342
Standard hours	13,748	13,626	14,157	15,071
Actual hours	13,091	20,957	21,453	23,535
FTE variance*	.34	(3.85)	(3.84)	(4.45)

**FTE variance is actual hours minus standard hours divided by an estimated average work year of 1,900 hrs.*

no potential effect on operating costs in either his hospital or the hospital industry. In contrast, he said he believed that the CASH Labor Performance Control program (an industrial engineering application) could decrease operating costs in both Hospital V and the hospital industry if it were effectively implemented.

It is here that the theme emerges. Despite his conflicting statements concerning industrial engineering techniques, it was clear that the CEO believed that the LPC program could be utilized as a tool to improve operating and manpower efficiency and to reduce operating costs. The responses of this individual suggested that he was aware of areas in which improvements in efficiency could be made, with concomitant cost reductions, but was constrained from taking action by the resistance of the medical staff. He perceived the CASH LPC program as providing the support necessary for taking action to improve efficiency and reduce costs. In the words of the chief executive officer, "I used the LPC program as a whipping boy. . . . It was used for leverage with the medical staff to serve my purposes."

(It should be remembered that the CEO misrepresented the LPC program to the medical staff. He indicated it was a standards program that the hospital was required to adhere to, not an experiment with a financial incentive involved. The medical staff was told that the hospital was obligated to improve its performance in those areas in which it did not meet established standards.)

The CEO was asked to comment upon the performances of the four departments selected for review during the on-site visit. With respect to the *Admitting Department*, the CEO noted its improved performance during the first incentive year. He pointed out, however, that such improvement came about despite the head of the department. He characterized the director of admitting as an individual of low management effectiveness and little capacity to utilize the LPC program effectively. According to the CEO, this individual was a weak department head.

The CEO said that the 41 percentage point improvement in the Admitting Department's performance index — from 38 per cent to 79 per cent — was the result of actions initiated and forced by the administration — e.g., imposed staff reductions. Total actual hours in this department had been cut from 45,122 in the base year to 21,080 in the first incentive year, which represented a reduction of 12 full-time equivalent employees. (Obviously, the Admitting Department contributed substantially to the hospital's overall improvement in productivity.)

The CEO also commented on the performance of the *Nursing Department*, which recorded a performance index of 80 per cent during the base year and 82 per cent during the first incentive year. He reported that, during this period, the director of nursing firmly resisted the CASH-IRE program. At the time, the administration strongly advocated a staffing reduction in the department; the director of nursing strongly resisted such a reduction. The director's position was that staff cuts would result in a reduction in the quality of nursing care. She made her position known to both the nursing staff and the medical staff. According to the CEO, the administration had insisted on the reduction, which resulted in the two percentage point improvement in the department's performance index for the first incentive year.

(It is of interest to note that information gathered in other interviews suggested that, during the period under discussion, Hospital V had difficulty recruiting nursing staff. It was also suggested that the two percentage point performance index improvement may have resulted from the hospital's inability to fill vacant nursing positions.)

The CEO indicated that the 46 percentage point decline in the *PBX Department's* performance index during the first incentive year was the result of equipment changes in the department. He explained that the changes were designed to improve efficiency and increase the flexibility of the system. He further reported that the change in the system required a new procedure for physicians. The medical staff had strongly resisted the required change, and, according to the CEO, this resistance and the related need for additional staff had accounted, in large measure, for the decrease in performance index.

The CEO characterized the *Radiology Department* as totally resistant to the CASH LPC program. He said the resistance began with the radiologists. However, the chief radiology technician later aligned himself with the radiologists, as did many members of the medical staff. Despite a base-year performance index of 105 per cent (within the optimal range of 90 to 110 per cent), the radiology staff believed the department was substantially undermanned. During the first incentive year, almost four full-time equivalent employees were added; even so, the annual volume of radiological procedures remained stable. The staff insisted that these additions were required to improve the

quality of service. The hospital administration had questioned the necessity of adding personnel but had yielded to the pressures of the radiologists and their supporters.

The CEO perceived Hospital V's overall improvement in performance during the first incentive year as resulting from "effective use of the team approach . . . high morale and enthusiasm . . . positive action of the administration and concerned department heads."

(It should be noted that these comments were made in contrast to the CEO's perception of both the Admitting Department, which had improved significantly over that period, and the Nursing Department, which had improved slightly. In the opinion of the CEO, the hospital had, during the first incentive year, improved its efficiency and effectiveness without sacrificing quality. He said, in fact, that he thought that the quality of service provided had also improved during this time period.)

The CEO perceived financial incentive connected with the experiment as providing little motivation for the hospital to improve its operation. He indicated that, as a professional hospital administrator, he was constantly concerned with, and striving to improve, operations. Equal effort, he said, would have been expended with or without the financial incentive. He also said he suspected that the financial incentive played a greater role in motivating other participating hospitals than it did in motivating Hospital V.

At the time of interview, the hospital had received approximately $28,000 of its total $47,873 first-year incentive reimbursement payment. The CEO indicated that it was not until these funds were received that the hospital staff, particularly the medical staff, became aware of the financial incentive aspect of CASH-IRE. The CEO stated that the incentive payment received, and the additional amount expected, would be earmarked for use by the hospital medical staff, probably for purchase of equipment. This decision was based upon a strategy aimed at gaining medical staff support for the CASH LPC program.

At the close of the interview, the CEO was questioned with respect to the value of the experiment, excluding the value of the potential financial reimbursement. *At that time, he reiterated his belief that the value of the LPC program lay in its use as a tool — a tool to apply leverage for initiating necessary change and for promoting acceptance of change among reluctant department heads and medical staff members.*

Chief of Staff

The chief of staff at Hospital V was a board-certified internist who had been on the hospital staff for eight years. He considered himself to have been an active staff member throughout the eight years, which had culminated in his appointment as chief of staff. In addition to his appointment at Hospital V, he had two clinical faculty appointments, one at a government-operated teaching hospital and the other at a university teaching hospital. This individual indicated, however, that his entire private hospital practice was conducted at Hospital V.

At the time of the interview, the interviewee was aware that his hospital had been participating in CASH-IRE for approximately 18 months. He perceived the program as one in which individual hospital departments were evaluated and rated in terms of their efficiency and in which departments that rated poorly were provided with recommendations for improvement. The specifics of the LPC program were not clear to this individual. Moreover, he was aware neither of the concept of a performance index nor of the presence of a dollar incentive.

During the interview, the chief of staff was asked to give his perceptions of the relative status of Hospital V and the hospital industry with respect to operating costs, labor utilization, efficiency, and effectiveness. He stated the operating costs of Hospital V and the hospital industry, in general, were about what they should be. He commented that, if anything, the costs at Hospital V were on the low side. Overall hospital efficiency and manpower utilization were perceived by the chief of staff as less than adequate in his hospital, as well as in the hospital industry. In this regard, he commented that there were numerous areas in the hospital in which less well-trained persons could be utilized to perform tasks that, at present, were reserved for higher-salaried, more highly trained individuals. The interviewee said he believed that hospital operating costs could be significantly decreased if industrial engineering techniques were effectively applied in both the hospital industry and Hospital V.

Requesting the chief of staff to focus on the first incentive year, the interviewer asked him to com-

pare Hospital V with other hospitals of comparable size and scope of service in which he practiced. (Note that the interviewee had previously indicated his practice was concentrated entirely in Hospital V.) Regarding the availability of staff and services, he said that, during the first incentive year, Hospital V compared less favorably with other hospitals. With respect to staff effectiveness, he said he believed it was comparable. Even though the chief of staff indicated that the availability of staff and services was less in Hospital V than in other hospitals, he said that patient satisfaction was greater. Moreover, he indicated that the quality of direct patient care services was better in his hospital than in comparable institutions.

The interviewee was also asked to rate the foregoing characteristics of his hospital on a pre- and post-CASH-IRE basis. With respect to staff and service availability and to staff effectiveness, the chief of staff indicated that the hospital was worse after the onset of the experiment. With respect to patient satisfaction, he indicated that satisfaction was the same or improved; he also rated the quality of direct patient care services as improved. (From these remarks, it would seem that this individual believes that service availability and staff effectiveness are not directly related to quality of patient care and/or patient satisfaction.)

The interviewee attributed the decline in staff and service availability to recruiting problems that the hospital experienced during the first incentive year. He recalled that reductions in the availability of staff and service were particularly apparent in the nursing service, which also experienced the most difficulty in filling vacant positions.

It is interesting to note that the chief of staff made special reference to the Radiology Department as having significantly improved its effectiveness, efficiency, and quality of service during the first incentive year. During that year the Radiology Department's performance index decreased by 40 percentage points.

Hospital Personnel by Functional Department

As already noted, the evaluation team selected four departments in Hospital V for indepth data gathering and review. With the exception of the PBX Department, interviews were arranged with appropriate persons in these departments.

Admitting Department

The individual in charge of the Admitting Department from the beginning of the experiment through most of the second incentive year had been replaced after 10 years' tenure. As a result, the interview was conducted with the new department head, who had begun her service in February 1971. Accordingly, the responses of the director of admitting were limited to that period of the experiment after February 1971.

During the interview, this individual indicated that she had been aware of the LPC program, as well as of the incentive reimbursement aspects of CASH-IRE. She estimated that approximately five per cent of her time had been involved with experiment-related activities.

The interviewee was asked to describe her attitudes and to give her perception of the attitudes of her staff with regard to a number of aspects of the LPC program. She indicated that, to her knowledge, the department's initial receptivity to the program was negative. At the time of the interview, however, she indicated that she, personally, was very receptive to the program and that her staff also had a positive attitude. Regarding the accuracy of LPC standards, she said she thought that standards for the department were low; she offered no comments on her staff's perception of the adequacy of the standards.

The interviewee indicated that both she and her staff thought the LPC program could result in an improvement in efficiency, effectiveness, and quality of service. Regarding the impact of the LPC program on overall hospital quality, she said that she thought it would have neither a positive nor a negative effect.

The interviewee was asked to give her perceptions of operating costs, general levels of efficiency, levels of manpower efficiency, and the impact of industrial engineering techniques on operating costs in admitting departments in both Hospital V and the hospital industry. With respect to the general level of efficiency and manpower utilization, the interviewee said that both were less than adequate in the hospital industry and more than adequate in Hospital V's Admitting Department. Similarly, she perceived operating costs in other admitting departments to be above an appropriate level, whereas operating costs in Hospital V's Admitting Department approximated an appropriate level.

The effective application of industrial engineering techniques was seen as potentially capable of significantly decreasing operating costs in the hospital industry. The interviewee stated that these

techniques had been effectively applied at Hospital V but that additional efforts would have little effect on operating costs. This department head indicated that departmental operations were reviewed, on a monthly basis, to determine whether staffing patterns conformed with variations in demand for service. The LPC program was perceived as an integral part of this review.

(It should be noted that this particular interview offered little in the way of insight into the relationship between attitudes and actions among this department's staff members or into performance during the first incentive year. Since the department head had assumed her present responsibility after the first incentive year, her attitudes and receptivity to the program with respect to the second and the third incentive years were of interest.)

Nursing Department

The individual responsible for the Nursing Department from the beginning of the experiment through most of the second incentive year had left. Most of her supervisors had been discharged or had resigned. Consequently, two head nurses were interviewed instead of the head of the department. One was a head nurse on the surgical floor, who had been a surgical staff nurse at the onset of the experiment. The other was the head nurse in pediatrics, who had been in that position from the beginning of the experiment. The two nurses were interviewed jointly.

Both nurses indicated their awareness of the hospital's participation in CASH-IRE and stated that they had been aware of its operation since the beginning. These individuals were also aware that the experiment involved the application of industrial engineering techniques. They were unaware, however, of the specifics of the LPC, having no knowledge of either the performance index concept or the fact that an index was being developed monthly for each unit of the Nursing Department. The two nurses stated that they had been aware of the financial incentive from the onset of the experiment. (It should be noted that this statement is contrary to that made by the chief executive officer, who said hospital employees were unaware of the financial incentive payment until it had actually been received.)

The interviewees were queried with respect to their perception of operating costs, general level of efficiency, and the efficiency of manpower utilization in nursing departments and with respect to the impact effective application of industrial techniques would have on such departments. When asked to respond to these inquiries in relation both to Hospital V and to the hospital industry, the nurses said they were unable to comment on the overall hospital industry because of their long tenure at Hospital V. With respect to hospital operating costs, both indicated that costs in their hospital were about what they should be. They also said they believed that the hospital's overall efficiency and the Nursing Department's efficiency in utilizing manpower were more than adequate. Regarding the application of industrial engineering techniques, they concurred in the belief that such techniques were *not* applicable to the patient care aspects of nursing departments.

The interviewees were then asked to indicate their attitudes and those of their fellow employees with respect to a number of aspects of the LPC program. Regarding initial receptivity to the LPC program, they indicated that they and their fellow employees reacted in a neutral way. They stated that the attitude was generally "wait and see."

During the interview, the nurses indicated that they were unaware that the hospital was presently participating in CASH-IRE. Moreover, they stated that they were unaware that LPC standards had been constructed for their department. With respect to the value of the LPC program in improving efficiency and effectiveness, both nurses indicated that the director of nursing had initiated a master staffing plan for the department during the first incentive year. However, they were unaware of whether this plan was related to the LPC program. Both nurses said that the department's efficiency and effectiveness had improved after the initiation of the staffing plan, regardless of whether it had been related to the LPC program.

(According to the chief executive officer, who was questioned after this interview, the master plan was related to the LPC program. This suggests some conflict, in that the nurses interviewed indicated their support for the master staffing plan, while the CEO related the strong negative response of the nursing director and her staff to the LPC program.) The interviewees also indicated that the quality of service had improved, again attributing this to implementation of the master staffing plan.

Regarding the availability, effectiveness, and efficiency of the nursing staff and the quality of the services provided before and after CASH-IRE, interviewees reported improvement in all four categories. Their recollection was that a director of

nursing had been hired in 1968, two years before the CASH-IRE program began in Hospital V. The interviewees attributed improvements made to the direction and leadership provided by that director and to the master staffing plan developed by her early in her tenure. (This was the director who had been described previously in negative terms and who left in 1971.)

The interviewees were asked to identify other departments that had demonstrated positive or negative changes in efficiency, effectiveness, or quality of service since the onset of CASH-IRE. The Radiology Department was identified as one that improved in all areas. The interviewees described their relationship with the Radiology Department as being more harmonious. The laboratory was also identified as a department that improved in all areas. Housekeeping and Dietary Departments were reported as improving efficiency, effectiveness, and quality. The Dietary Department was described as improving generally, and the Housekeeping Department was singled out as having improved its procedures with respect to discharges. In addition, the Business Office was described as improving its efficiency and effectiveness. The foregoing improvements were attributed to improved procedures. No departments were identified as demonstrating less efficiency, effectiveness, or quality since the onset of CASH-IRE.

Radiology Department

At Hospital V, the directorship of the Radiology Department rotated among staff radiologists. The director at the time of the interview was an individual who had been at the hospital approximately 10 years.

The interviewee was queried about operating costs, general levels of efficiency, and manpower utilization. He was also asked about the impact effective application of industrial engineering techniques would have on operating costs in radiology departments in hospitals. He was requested to respond with respect to both Hospital V and the hospital industry in general. He indicated, however, that he was able to respond only with respect to the hospital in which he practiced. The interviewee was unable to comment on the appropriateness of costs in the Radiology Department. He stated that the hospital monitored costs and that he had no information concerning or awareness of the cost of operating his department.

Regarding the level of efficiency in his department, the interviewee indicated it was adequate and commented that quality rather than efficiency was his primary interest. With respect to the level of efficiency in utilizing labor in the department, he indicated that it was reasonable.

It was the opinion of the interviewee that industrial engineering techniques could in no way enhance the operations of radiology departments. In his words, "Industrial engineers couldn't possibly know more than radiologists or chief technicians about the operations of radiology departments. . . . They could only make recommendations at the cost of quality." This comment, in effect, summarized the content of the interview with the director of radiology. It explained his low level of awareness of the program and his lack of receptivity to the program. It also explained the CEO's comments regarding the very negative response of the Radiology Department with respect to CASH-IRE.

The interviewee indicated that he was aware that the hospital was participating in the experiment. Only recently, however, had he become aware of the financial incentive. Regarding the amount of time involved with CASH-IRE, he indicated "none."

The interviewee was asked to indicate his attitudes regarding a number of aspects of the LPC program. He had no comment with respect to his receptivity to the LPC program. (His previous comments had indicated his negative attitude toward the program.) With respect to the accuracy of the LPC standards, he said they were meaningless to him. He considered the value of the LPC program in improving efficiency and effectiveness as nonexistent. With respect to the LPC program's impact on the quality of radiological services, he indicated that it, at one time, had had a negative effect, in that the hospital administration was using the department's performance index as a justification for not replacing what, in his opinion, were much needed employees. With respect to the impact of the LPC program on overall quality of hospital service, he indicated he was unable to respond for any department other than the Radiology Department.

In response to a question regarding periodic review of staffing patterns, vis-à-vis demands for service, the director of radiology indicated that no such reviews were undertaken, on a regular basis, by the department.

(It was of interest to note that the responses received from the director of radiology concurred

with the perceptions of the CEO. The CEO described the department staff as extremely negative and totally unwilling, in any way, to participate actively in the program. He related that unsuccessful attempts had been made to refuse requests for additional employees, based upon LPC program data. According to the CEO, staff radiologists sought and obtained support for their requests for additional personnel from the medical staff. The hospital administration subsequently yielded to the pressures brought to bear.)

CASH Representative

As noted previously, the evaluation team conducted two interviews with the CASH representative assigned to Hospital V. The first interview was conducted at approximately the same time interviews were conducted with hospital personnel and focused upon the first incentive year. The second interview was conducted after the completion of the experiment and focused on the second and third incentive years.

Initial Interview

The CASH representative assigned to Hospital V had served in that capacity since January 1970, which qualified him to comment retrospectively on the experience of this hospital vis-à-vis the experiment.

During the interview, the CASH representative described the attitude of the hospital's chief executive officer as "stand-offish." As mentioned previously, Hospital V had not been a CASH member when it was approached to participate in the experiment. The CEO was described as willing to receive, as part of the experiment, CASH services — services that were otherwise available only to dues-paying members of CASH. The CEO was also willing to participate in the experiment, but he projected a noncommital attitude concerning whether the program would be of value in improving manpower utilization and containing or reducing labor costs.

The CASH representative described the organizational environment of the hospital during the first incentive year of the experiment as unstable and undergoing change. He attributed to this the hospital's relative inactivity with respect to undertaking efforts aimed at improving performance indices.

The CASH representative noted that the assistant administrator interviewed had been named personnel director during the first incentive year, with the understanding that he would be groomed to be an assistant administrator. The assistant administrator for fiscal services had also been recruited during this period.

The CASH representative further described the poor and difficult relationship between the CEO and the director of nursing. According to the interviewee, the CEO recognized the inadequacy of several of his department heads during the first incentive year and began to anticipate the need for replacing them. (It should be noted that a number of department head changes were made. These included changes in the Admitting Department, the Nursing Department, and the PBX Department, as well as a change of chief radiology technicians.) The CASH representative perceived the changing organizational environment as having contributed, in part, to the hospital's reluctance actively to develop and implement programs aimed at improving its performance index.

The interviewee stated that, in addition to the poor organizational environment, the hospital began its construction and renovation program almost simultaneously with the onset of CASH-IRE. He noted that a good deal of administrative time and energy was devoted to the construction and renovation program. In response to an inquiry regarding the impact of the construction program on hospital operations, the CASH representative stated that, during the first incentive year, the impact was such that standards in some cost centers were revised. In other cost centers, personnel time related to construction, moving, and so forth was being accounted for separately, and appropriate adjustments in hours worked and/or actual hours paid were to be made in the second incentive-year computations.

The CASH representative described the CEO's activities with respect to improving performance as being limited to a handful of individual departments. The director of nursing had been urged to undertake an effort to improve the department's performance index. The CASH representative reiterated the strong negative attitude on the part of the director of nursing — an attitude described by the CEO in an earlier interview. The director of nursing condemned the LPC program, stressing its inappropriateness with respect to nursing functions. She sought and won the support of her staff, as well as of many members of the medical staff, for her claim that, if anything, the Nursing Department needed additional manpower.

The CASH representative was unable to explain readily the two percentage point improvement in performance index in the Nursing Department. The interviewer suggested that, as previously indicated, the reason might have been the department's difficulty in recruiting nurses during the first incentive year. The representative concurred that this was the only possible explanation for the improvement.

The CASH representative singled out the Admitting Department as the cost center that changed most dramatically during the first incentive year. At the onset of the experiment, the Admitting Department was described as one that had, historically, been poorly managed. The department head was a registered nurse with little or no management ability. Staffing patterns, in addition to being excessive, bore little relationship to demand for admitting services. The CASH representative stated that the CEO had been aware of problems in this particular department and that the 38 per cent base-year performance index of the department supported his intent to reduce substantially the staffing there.

According to LPC program figures, staffing in the Admitting Department was reduced by approximately 12 full-time equivalent employees during the first incentive year. This reduction was partially explained by: (1) the discontinuance of night staffing, (2) layoffs, and (3) rescheduling aimed at relating staffing of the department to demands for its services. Because of the substantial staff reduction in this department, the representative was asked whether staff and responsibilities had been redistributed to other departments. The representative indicated that, if this had been done, it had been done on a very limited basis.

(It should be noted that a review of payroll costs in the Admitting Department and the Business Office suggested that the latter may have assumed some of the staff and the responsibilities of the former. The Admitting Department reduced its actual hours from 45,122 in the base year to 21,080 in the first incentive year. However, its payroll was reduced less than $5,000, from $111,394 in the base year to $106,738 in the first incentive year. The Business Office reported a payroll of $197,787 in the base year; this increased to $227,447 in the first incentive year. If such a transfer of staff and responsibility did occur, the standards of both the Admitting Department and the Business Office should have been altered appropriately. No such alteration was made during the first incentive year.)

The CASH representative noted that the Dietary Department was the only other department in which a concerted effort was made to improve the performance index. He said that its 69 per cent performance index in the base year called attention to possible overstaffing in that department. The CASH representative also indicated that the department director had identified a need for additional staff in anticipation of the opening of the new building. He attributed the decision not to expand staff but to reduce it by approximately three full-time equivalent employees and the concomitant three percentage point improvement in PI to management decisions based on LPC data.

The CASH representative was unable to offer an explanation for the performance of the PBX Department during the first incentive year. The department dropped from a 114 per cent performance index in the base year to a 68 per cent index in the first incentive year. The total actual hours in the PBX Department increased 3,915, or approximately two full-time equivalent employees. The interviewer asked whether the decline in performance index might be related to an equipment change, as suggested by the CEO. The representative was unaware of any change in equipment and remained unable to offer an explanation for this department's performance.

The Radiology Department was discussed briefly. The CASH representative re-enforced information from earlier interviews. Briefly, the Radiology Department was extremely resistant to the LPC program and insisted upon its need for additional personnel. The department radiologist sought and obtained support from the chief radiology technician in demands for additional personnel. Staff radiologists sought and obtained additional support from members of the medical staff. The hospital administration yielded to the pressures brought to bear, and the department increased total actual hours by 7,866, or approximately four full-time equivalent employees, during the first incentive year. The performance index declined from 105 per cent in the base year to 65 per cent in the first incentive year.

The CASH representative was asked to offer an explanation for the hospital's overall three percentage point improvement in performance index and its related $47,873 incentive payment. Consistent with responses to earlier questions regarding attitudes and actions of the CEO and department heads, the representative indicated that the changes that occurred at Hospital V were *largely independent of the existence of CASH-IRE.* Active, con-

certed efforts to improve performance indices were undertaken only in the Dietary and Admitting Departments. While the staffing reductions made in the Admitting Department in and of themselves accounted for the hospital's overall improvement, the CASH representative's comments suggested that the performance improvement could not be entirely attributed to the LPC program. Seemingly, the CEO would have undertaken drastic cuts in this area with or without the existence of the LPC program.

The CASH representative briefly commented upon the hospital's activity vis-à-vis CASH-IRE for the second incentive year (completed) and the third incentive year (in progress). He stated that the organizational environment had stabilized since the first incentive year. The CEO had replaced a number of weak department heads. The interviewee further stated that the CEO and his administrative staff had *not* undertaken a hospital-wide effort to improve the hospital's performance index. Hospital V's approach continued to be one of identifying low-performing departments, in which the climate was right for assessing the relationship between service demands and staffing patterns. It appeared that the departments identified were rather carefully selected by the CEO. The responsibility for making the assessments and the resulting staff reductions were delegated to the assistant administrator responsible for personnel.

The CASH representative characterized the interest and activity of the hospital administrative staff vis-à-vis the LPC program as having improved in the second and third incentive years. He similarly indicated that receptivity and understanding among department heads had generally improved. Apparently, however, receptivity to and understanding of the LPC program remained low on the part of professional department heads. Hospital V was characterized as average, among the four experimental hospitals this representative was responsible for, in terms of receptivity, understanding, and level of activity with respect to the LPC program.

The CASH representative's perceptions of the hospital's CEO were almost identical to the interviewer's. *The CASH representative said the CEO used the LPC program as a tool to accomplish predetermined objectives in areas in which he perceived a problem. The perception of the problem, however, was usually independent of the LPC program.*

Follow-up Interview

After the experiment was completed, a second interview was held with the CASH representative. The focus of the interview was to be the second and the third incentive years of the experiment. However, the CASH representative had difficulty focusing on those two years, and he tended to respond to questions from an overview perspective.

The representative stated that, in order to understand and appreciate the nature of Hospital V's participation in the experiment, it was necessary to understand the chief executive officer and his management style. He described the CEO as one of the "sharper" administrators among the 30 the representative had dealt with during his employment with CASH. He stated that this "sharpness" was evidenced by the fact that Hospital V recorded approximately 15.5 total man-hours per patient day, which was very good in comparison with all other hospitals. The representative explained that the CEO wished to remain at Hospital V until his retirement and that his entire approach to managing the institution was affected by this wish. Moreover, the CEO was reported to have felt very comfortable in his position. The representative also described the CEO as one who preferred to maintain total control of the hospital and who, with one exception, engaged in very little delegation of responsibility. The one exception was delegation to the director of the Nursing Department.

The CASH representative described the CEO as somewhat more receptive to the LPC program toward the end of the experiment. He indicated that the CEO had a firm grasp of the LPC program and had been cooperative to the extent he wanted to be. The interviewee also described the CEO as using the LPC program with a "soft glove."

In general, the CASH representative reiterated the statements made in the previous interview — e.g., the CEO used the LPC program to his own advantage. Consistent with previous statements, the representative suggested that, when the CEO identified a department that was not performing to his satisfaction, he might use the LPC data to corroborate his perceptions. Then, if confrontation with the department head would not cause too many problems, the CEO would take action. The general nature of that action had been for the CEO to decide that staff in a given department would be cut through attrition. Typically, the department head would not be involved in the action. Rather, the CEO would instruct the

assistant administrator in charge of personnel to "keep a lid on staffing," and requisitions for additional or replacement personnel would not be acted upon. The representative also stated that the CEO might use LPC data in refusing a request for additional personnel in departments that he perceived as being adequately staffed.

The representative stated that the assistant administrator for personnel had been the principal liaison between the hospital and CASH during the experiment. The representative then offered some limited comments on the assistant administrator's role as liaison. First, however, he qualified his remarks by saying that he did not like this individual and thought he was not particularly competent. He said further that this individual's only effective role in the experiment was his responsibility for the Personnel Department and for whatever action he took to maintain a high performance index. The interviewee added that most of this person's activity revolved around complaints about the validity of standards. "If I could get things done through him," the representative said, "fine. If not, I went to the chief executive officer or directly to the department head."

The representative was asked to comment upon the grasp by department heads of the LPC program and upon their involvement with it. He was also asked to comment on their receptivity to the program. In response, the representative stated that the general service departments were reasonably cooperative. When asked to be more specific, the representative commented that the Dietary and Maintenance Departments were cooperative. In fact, both had implemented some of the recommendations made by the representative, which resulted in significant increases in their performance indices. The representative also stated that the Admitting Department and the Business Office were problems. Attempts had been made, without success, to improve their performance indices. The representative added that he believed that there was no hope for these departments.

The representative stated that he had little contact with the professional service departments. He implied that there was probably little understanding of the program in these areas and that the lack of contact was caused by the CEO's unwillingness to confront professional department heads.

The Nursing Department was singled out by the representative for restatement of comments made in the previous interview. He stated that there was almost total resistance and a total lack of understanding of the LPC program in this department — at least through the second incentive year of the experiment. He added that the CEO's principal objective in this department was to reduce the ratio of licensed personnel to unlicensed personnel. He indicated that, at one time, approximately 65 per cent of nursing personnel were registered nurses and that it was the CEO's wish to reduce the figure to approximately 50 per cent. Actions of the CEO in this regard precipitated the termination of the director of nursing. Moreover, toward the end of the experiment the 50 per cent objective was almost reached. The representative observed that, while the reduction in the number of licensed personnel was a cost-saving measure, it would not be rewarded by an incentive payment.

The CASH representative was asked to comment on the second and third incentive-year performance of the departments previously singled out for indepth data gathering and review. Regarding the *Nursing Department*, the representative stated that the director of nursing, who had been such a problem during the first incentive year, remained through the second incentive year. Given her attitudes, he said, there was no reason to expect any improvement. He stated that a new director had been hired during the third incentive year of the experiment and that some action had been taken to improve the performance index of the department.

With regard to the *Admitting and PBX Departments*, the representative stated that, during the second and third incentive years, there were shifts in responsibility for several functions relating to the operation of both departments. The representative indicated that productivity improvements had been accomplished in the first incentive year of the experiment in the Admitting Department. However, he could not recall any such improvement in the second and third incentive years, nor could he discern any productivity improvement in the PBX Department.

The *Radiology Department* was, in the words of the CASH representative, beyond his reach. He indicated that he had little contact with this department and had received no encouragement from the administration to approach it.

The CASH representative said he believed that the LPC program has been used, to some extent, during the life of the experiment. He stated that it was used as a performance indicator in relationship to other performance indicator programs, such as the HAS program. He qualified this comment, indicat-

ing that this was not the principal purpose of the program.

The Dietary and Maintenance Departments were once again mentioned as two specific areas in which the LPC program was utilized effectively to improve productivity. The representative added that the program was generally used to corroborate the intuitive feelings of the CEO when he suspected less than desirable productivity in an area. It was also used occasionally as a lever when the CEO wished to take action to improve productivity in a given area.

When asked whether he believed the LPC program contributed to the improved productivity of this hospital in each of the incentive years, the representative responded affirmatively. He stated that the program had, in the first incentive year, helped improve productivity in the Dietary and Admitting Departments and that, in subsequent years, it had contributed to improvement in the Housekeeping and Maintenance Departments. The representative added that he believed the program had been of particular value in determining and controlling staffing patterns for the hospital's new addition. Moreover, he stated that several instances occurred in which needs projected by department heads for the new wings had been reduced when projected performance indices were computed. The representative also indicated that, if the hospital had not been in the process of expansion during the experiment, an even more dramatic improvement in productivity would have been achieved.

When asked if the financial incentive had been a motivating factor at this hospital, the CASH representative stated that it may have motivated the CEO to some limited extent. He explained that the CEO tended to have an "achiever" personality and that he desired to be successful at whatever he did. It was the feeling of the CASH representative that the CEO wanted his hospital to be among those that had earned an incentive payment for each year. The representative added that, upon receipt of the incentive payments, the CEO made sure that the hospital staff, the medical staff, and the community became aware of the hospital's accomplishment.

Assistant Administrator Responsible for CASH-IRE

After the conclusion of the experiment, the assistant administrator responsible for CASH-IRE was interviewed to gain information regarding Hospital V's performance in the second and third incentive years of the experiment.

The interviewee had begun his employment at the hospital in June 1969, as director of personnel. In January 1970, he was appointed assistant administrator — and was assigned responsibility for the housekeeping, dietary, security, maintenance, PBX, and personnel functions. In the summer of 1970, this individual was assigned responsibility for the CASH program, and he became the principal liaison between the hospital and the CASH organization.

During the interview, attempt was made to assess the attitudes of the interviewee with respect to hospital operating costs, efficiency, and productivity. He responded by stating that the Hospital's operating costs and its level of efficiency, effectiveness, and quality of care had improved enormously during the three years of the experiment. He explained that, prior to his arrival at the hospital, the managerial quality of department heads and other supervisory level personnel was generally very low. Prior to the onset of the experiment, he said, "we began to get rid of low-level personnel. Unsatisfactory personnel, including department heads, were weeded out. Personnel expertise, productivity, and quality of performance were significantly upgraded. Basically, we were doing more with less personnel."

The interviewee was asked to characterize his impressions of the hospital's experience with the experiment both at the onset and during the first incentive year. He underscored the impressions obtained from others at the time of initial interview, characterizing most department heads as very resistant to the CASH program and generally unwilling to become involved. He further stated that "We forced them [department heads] to use it [the LPC program]."

He indicated that the LPC program had been presented to department heads not as an experiment or a choice but as a program required by the federal government — a program that demanded improvements in hospital operations. Department heads had been told that they must cooperate and make improvements to avoid government intervention in hospital operations. The interviewee stated that "a type of fear was instilled in department heads." It was not until the first incentive payment was made, some time during the second incentive year of the experiment, that hospital staff members were informed of the true nature of the experiment. The interviewee reiterated, at this point, that "we were well on our way [toward improvement] prior to the onset of the experiment, and CASH data were used as a tool to weed out unsatisfactory personnel."

The assistant administrator was asked to explain how the LPC program was used as a tool. In response he stated that it was important to present his perceptions of the shortcomings of the CASH program prior to describing its use. He said, "I still contend that I am not sure that the levels at which they [CASH] measure hospitals is right. How can CASH compare this hospital to others?" He then offered an explanation of why Hospital V should not be compared with other hospitals. In doing so, he made reference to the frequency of housekeeping tasks and quality of care as examples of why it was not fair to compare Hospital V to most other hospitals.

The interviewee added that, on numerous occasions, the CASH representative was requested to alter standards to reflect the "high standards" maintained at Hospital V. He commented that the CASH representative was willing to listen but reluctant to make changes. He indicated, however, that some changes had been made and that credit had been given the hospital for additional standard hours. These changes and credits were related particularly to the hospital's construction and renovation program. The assistant administrator added that it was difficult for the hospital to keep track of construction-related work; hence, the hospital's performance was not accurately measured. He said again, "CASH was always easy to work with but reluctant to make changes."

Returning to the question of how the LPC program was used in the hospital, the interviewee stated that he reviewed reports monthly. Departments with particularly low performance indices were singled out, and meetings were held that included the interviewee, the CASH representative, and the involved department head. The assistant administrator stated that, at these meetings, the CASH representative would encourage him and the department head to establish a target performance index. He stated further that the target suggested by the CASH representative was usually higher than he and the department head thought realistic. He explained that differences in the suggested target performance indices were related to the failure of CASH to take into account the fact that performance levels at Hospital V were higher than those in other hospitals.

The interviewee said that it was not hospital policy to discharge personnel; instead, improvements were generally made through attrition. He quickly qualified these comments by saying, "We had, of course, previously been trying to weed out poor personnel and replace them with individuals whose personalities, emotional states, and general level of competence were consistent with the desire to move toward target performance indices." When asked for specific examples of departments in which this procedure was applied, the interviewee could not provide an answer.

The interviewee was asked to comment upon the performance of the four departments previously selected for indepth review. He was given summary information on the performance of these departments from the base through the third incentive years. Regarding the *Nursing Department*, he stated that part of the accomplishment during the first year came about because the administration imposed a maximum on the number of full-time equivalent employees the department could employ. He indicated that, subsequent to the termination of the dissident director of nursing, improvements had been made, in part, as a result of intelligent staffing. He cited as an example of intelligent staffing that float and part-time nursing personnel were used in accordance with the varying demands for nursing service. Upon reviewing the summary statistics for the Nursing Department, the interviewee was surprised to learn that the performance index for that department had declined from 82 to 79 per cent between the first and second incentive years of the experiment. He stated that it was his impression that the Nursing Department had continued to improve throughout the experiment.

The interviewee characterized the *Radiology Department* as very uncooperative. He corroborated previous findings that the radiologists demanded and received additional staffing in the first incentive year of the experiment and that they were, subsequently, unwilling to alter staffing patterns to improve the department's performance index.

Without examining figures for the *Admitting Department*, the interviewee stated that it was one among several departments that suffered in performance index as a result of the move to a new location during the third incentive year of the experiment. He went on to explain that, prior to the move, a central admitting office handled both inpatient and outpatient admitting. Subsequent to the move, however, separate admitting areas were established — both of which had to be staffed. Staffing two admitting functions, he said, resulted in an increase in hours worked — an increase that did not necessarily mean a commensurate increase in the number of admissions per day. The interviewee said he believed that the Admitting Department standards should have been adjusted at the time of the move to the new building.

The interviewee was unable to explain the substantial variation in performance index for the Admitting Department, which had varied from 38 per cent to 79 per cent to 70 per cent to 47 per cent in the four years covered by the experiment. (It should be noted that the decline to 47 per cent in the third incentive year was a result of the transfer of certain activities from the Admitting Department to the PBX Department.)

In the discussion of the *PBX Department*, the interviewee also began his comments without examining departmental figures. He indicated that there had been multiple changes in the PBX Department. Among them were:

- A change in the coverage of the PBX operation on the night shift. Before the expansion, the clerk in the Emergency Room covered PBX.
- The purchase of new telephone equipment, with the unfilled promise that staff would be reduced.
- Additional staff, resulting from physician complaints about certain aspects of the new telephone system.

The interviewee then examined the performance index figures for the PBX Department, seeming to become quite confused. He was unable to explain the decline from 114 per cent in the base year to 68 per cent in the first incentive year, stating that the old system had been in operation at this time. The interviewee was also unable to explain the rise to 106 per cent in the second incentive year and the subsequent decline to 98 per cent in the final year of the experiment.

(It is noted here that the confusion of the interviewee with respect to performance of the departments just discussed and with respect to his inability to describe actual use of the LPC program led the interviewer to conclude that the assistant administrator had not used the LPC program as an effective tool — even though he would have had one believe he did. It is suspected that the interviewee's confusion was more a result of the lack of a concerted and consistent use of the LPC program than it was of a memory lapse.)

The interviewee was questioned about the financial incentive. When asked whether the financial incentive was a motivating factor in activities undertaken by the hospital, he said, "Dollars always motivate people." He then proceeded to say that, during the first year of the experiment, the hospital administration was frankly quite skeptical of whether financial incentive payments would be made. He stated that the administrative staff was somewhat surprised and pleased when a payment had, in fact, been received. He stated further that, after the initial payment was received, the financial incentive may have provided a slight motivation for him and for the administrator in undertaking further improvements. He added, "I was surprised and disappointed when the payment for the second incentive year was less than that for the first. As a result, we were not motivated at all during the third year of the experiment and were, frankly, disgusted." The interviewee reported that, after the first incentive payment was received, an attempt was made to publicize the payment among the medical staff, employees, and community and to thank them for their contribution. The money received was used for the purchase of equipment requested by the medical staff.

Finally, the interviewee was asked whether the IRE and LPC programs truly contributed to improved productivity at Hospital V during the three-year experimental period. The interviewee stated that, while it was difficult to make such an assessment, in his opinion the hospital probably would have made the same accomplishments without CASH. He added, "We were going in the same direction, and CASH made the job easier. . . . I was thankful and happy that I had CASH. It was a very good tool for increasing productivity."

SUMMARY AND CONCLUSIONS

Summary

Understanding the chief executive officer and his management style was a key to describing and assessing the involvement of this hospital in CASH-IRE. The CEO was both observed as and reported to be a "political manager," interested in maintaining an efficient and effective hospital operation. However, he was willing to confront only those parts of the operation that he was reasonably certain would not "rock the boat."

The CEO had an initial lukewarm reaction to CASH-IRE. He was reported to have become more positive toward the experiment and the LPC program toward the end of the experiment. Operating costs and levels of efficiency and effectiveness were perceived by the CEO as being more favorable in his hospital than in the overall hospital industry. He described them as adequate or more than adequate in Hospital V. He saw industrial engineering techniques in general, and those of the

CASH organization in particular, as potentially quite valuable in improving the operation of most other hospitals and of some value in Hospital V.

Data generated from the LPC program were perceived by the CEO as a tool. He relied almost exclusively on his own perceptions and instincts to identify problem areas within his organization. If the performance index of an organizational component proved to reinforce his own conclusions, he might have used it to build a case for accomplishing the desired result. LPC program data might also have been used as a lever to prod department heads into taking actions desired by the CEO. More typically, the CEO would achieve results by refusing requests for additional personnel or by refusing to approve requests for personnel replacements. With respect to these actions, it was not unusual for the CEO to order the personnel director not to take action on requisitions — issuing such orders without even conferring with the department heads involved.

Orientation to the experiment for department heads and the organized medical staff was conducted by the CEO. Staff members were not apprised of the fact that this was a voluntary program through which a financial incentive might be earned. Rather, they were told that it was a government program and that the hospital was required by the government to improve its productivity.

The assistant administrator responsible for personnel was assigned as the hospital's liaison with CASH. This individual stated that the theme established at the orientation was carried through the experiment. The LPC program was continuously presented as a requirement of the federal government, which was demanding productivity improvements. The assistant administrator stated, "We forced them [department heads] to use it [the LPC program]." During the interview with the assistant administrator, this individual attempted to characterize himself as an active and effective user of the LPC program. However, his inability to identify specific activities undertaken to improve productivity, together with comments made by the CASH representative, strongly suggested that no such active and effective use was made. This assistant administrator continually emphasized that a program had been begun, prior to the onset of the experiment, for improving the level of management expertise and labor productivity. The LPC program had merely been a tool to help accomplish these ends.

Interviews conducted at the hospital and with the CASH representative generally characterized department heads as having a poor understanding and a low level of awareness of the LPC program. The CASH representative stated that, by the end of the experiment, heads of the Dietary, Housekeeping, and Maintenance Departments did have a good understanding of the program. In fact, these department heads had used it. The professional department heads had little understanding of the program and, apparently, were not pushed by the hospital administration to use the program to improve productivity.

An indepth review of the performance of four departments indicated the manner in which the LPC program was used throughout the hospital. At the onset of the experiment, the Admitting Department was described as a weakly managed problem area. It was reported that the CEO had been aware of this for some time. Moreover, the reduction of approximately 12 full-time equivalent employees, which resulted in an increase in PI from 38 per cent to 79 per cent in the first incentive year, had been accomplished by administrative fiat. It was generally believed that these reductions would have been made with or without the presence of the LPC data.

A satisfactory explanation could not be obtained for the Admitting Department's subsequent decline in performance index to 70 per cent in the second incentive year and 47 per cent in the third incentive year. It was suggested that the creation of a separate outpatient admitting function in the new building may have contributed to this. However, it was not until the interviewer pointed out that there may have been a trade-off in functions between the Admitting and PBX Departments that the trade-off was also offered as a possible explanation. Neither the opening of an outpatient admissions function nor the transfer of functions was of sufficient magnitude to account for the change.

In the first year of the experiment, the CEO used the LPC data as justification to reject a request for additional personnel in the Radiology Department. The CEO was reported to have yielded utlimately to pressures from the radiologist and from supporting members of the medical staff, granting the staff additions. The performance index of this department dropped from 105 per cent in the base year to 65 per cent in the first incentive year. In subsequent years, the department's performance index deviated only one per cent from that first-year level.

The chief of radiology demonstrated a very poor understanding of the LPC program and completely discounted the program as having any potential value for improving departmental operations. He stated that "industrial engineers couldn't possibly know more than radiologists or chief technicians about the operation of a radiology department. . . . They could only make recommendations at the cost of quality." After the CEO's initial resistance to the department's request for additional personnel, there was no indication of subsequent attempts to encourage improved labor productivity. It was implied that the CEO was unwilling to confront this group.

The director of nursing at Hospital V was described by both the CASH representative and the CEO as extremely resistant to the LPC program during the first and second year of the experiment. She was alleged to have enlisted, and gained, the support of her staff and of some members of the medical staff in vigorously resisting the LPC program. The reactions and actions of the director of nursing ultimately led to her termination. The CEO was reported to have been primarily interested in reducing the ratio of licensed nursing personnel to unlicensed personnel. The director of nursing, however, strongly resisted reducing the percentage of registered nurses from 65 per cent to the CEO's desired level of 50 per cent.

Despite this resistance, the Nursing Department improved its performance index from 80 per cent in the base year to 82 per cent in the first incentive year. The assistant administrator who was the liaison with CASH suggested that the improvement had been accomplished as a result of the CEO's refusal to hire additional nursing personnel. While none of the other interviewees corroborated this observation, there was mention that the hospital had difficulty in recruiting personnel during this period and that this was a more likely explanation. There was, however, no explanation for the department's decline in performance index to 79 per cent in the second incentive year.

The increase to 82 per cent in the third incentive year was explained as having resulted from the hiring of a more cooperative director of nursing — one that agreed to a reduction in the staffing level. It was also reported that the ratio of licensed to unlicensed nursing personnel was reduced to approximate more closely the 50 per cent level desired by the CEO. The CASH representative commented that this labor cost-saving technique was not accounted for in the experiment.

The Dietary Department was one of only three that took positive action aimed at improving labor productivity. Such action was alluded to by the CEO and discussed by the CASH representative. The CASH representative had more fully oriented the head of the Dietary Department to the LPC program; subsequently, staffing patterns were assessed in terms of service demands and adjustments were made. These activities were initiated toward the end of the first incentive year, and it was reported that the department head continued to attempt improvement throughout the experiment. The department's performance during the experiment — beginning with a base-year performance index of 69 per cent and a closing index of 79 per cent — reflected the accomplishments of this department.

Use of the LPC program at Hospital V was carried out on two levels. On a hospital-wide level, the program was used as "a manipulative tool." This characterization is used by the interviewer because of the manner in which department staff members were oriented to the program. The fact that they were told that the program had been imposed upon the hospital as a federal requirement and that they were required to improve the productivity leads to this characterization.

On the departmental level, the LPC program was used as intended in three departments. As already discussed, the Dietary Department was one of these. In addition, the Maintenance and Housekeeping Departments were reported to have used the same approach as the Dietary Department in improving labor productivity. The performance index of the Maintenance Department reflected this use, in that the base-year performance index was 67 per cent and the third incentive-year performance index was 99 per cent. The Housekeeping Department improved its performance index from 78 per cent in the base year to 84 per cent in the second incentive year. However, there was a decline to 72 per cent in the final year of the experiment. The figures for the Housekeeping Department are not easily interpreted. It was suggested, however, that perhaps the opening of the new facility was the reason for the Housekeeping Department's decline in performance index in the third incentive year of the experiment, even though the CASH representative thought that the LPC program had been useful in projecting staffing patterns for the new facility.

The Hospital V case study suggests that the LPC program was used to some limited extent. Moreover, it suggests that the program may have

contributed to the hospital's improved labor productivity over the three-year life of the experiment. The CASH representative, in particular, implied that this was the case; he said he believed that the program had probably been most effective in assisting the hospital to project staffing requirements properly for the move into the new addition. The CASH representative said he believed also that the desire of the CEO to remain with this hospital until retirement, together with his style of management, would probably have caused him to act as he did during this three-year period with or without the experiment.

While there was some inconsistency among interviewees in describing the extent to which the LPC program was used, there was unanimous agreement that the financial incentive had not been a motivator. According to the interviewees, the hospital's improved productivity could not be attributed to motivation provided by the potential for earning a financial award.

Because the hospital was a consistent winner in each of the three years of the experiment, an attempt was made to assess subjectively whether there had been any deterioration in the quality of service at Hospital V. Again, there was a consensus — ranging from the opinion of the chief of staff to that of the CASH representative — that, if anything, the quality of service had improved at Hospital V during the experiment. It accumulated incentive payment awards of $86,073 over the three-year period, despite both a reduction in the demand for service and an involvement in a construction program that expanded its bed capacity approximately 50 per cent. Assessment of the total incentive payments received by the hospital as a percentage of total gross incurred annual payroll showed this hospital to be among the most successful in the experiment.

Conclusions

The preceding discussion presents the rationale for drawing the following conclusions about Hospital V and its involvement in CASH-IRE:

1. The financial incentive of CASH-IRE prompted no increase in motivation for either the CEO or key staff members to improve overall hospital productivity or departmental productivity during the life of the experiment.

2. On a hospital-wide basis, the LPC program was abused, in that it was promoted as a program to which the hospital was required to subscribe — one in which it was mandatory for the hospital to adhere to standards and to improve productivity.

3. Essentially, the LPC program was used as intended in only three departments. Improved performance indices in these departments provided evidence that the proper use of the program contributed to improved labor productivity.

4. The LPC program may have been used most effectively in assisting the hospital administration and department heads to develop proper staffing levels for the expanded facility in the third incentive year of the experiment.

5. The accomplishments of Hospital V during the life of the experiment were very much more a function of the CEO's aspirations and management style than of effective use of the LPC program.

The nature and subject of this experiment were such that it was exceedingly difficult to draw unequivocal conclusions. In the case of Hospital V, this problem was compounded by the sometimes conflicting information received from interviewees. The general conclusion was reached, however, that many of Hospital V's accomplishments would have been achieved whether or not it had been involved in the experiment and whether or not it had used LPC data. This conclusion has been reached, in part, because the CEO, the assistant administrator, and the CASH representative were unable, at times, to:

- Demonstrate relationships between activities undertaken and results achieved, as measured by the performance index, or
- Explain the reasons for increases or declines in the performance index of selected departments.

CASE STUDY: HOSPITAL W

INTRODUCTION

Hospital W is a 368-bed hospital which is located in a large urban area. Owned and operated by a religious order, this institution provides a full range of services to its community. As a participant in the Incentive Reimbursement Experiment (IRE) conducted by the Commission for Administrative Services in Hospitals (CASH), it received incentive rewards two of the three years of the experiment — the second and third years.

In Hospital W, ultimate responsibility for CASH-IRE rested with the chief executive officer (CEO). Staff responsibility for the program, however, had been delegated to the assistant administrator responsible for personnel and management analyst services; line responsibility, to members of the administrative staff.

Presentation of CASH-IRE

When the program was initiated, a number of actions were taken to ensure that key members of the hospital staff were properly oriented to it. The administrative advisory group, consisting of the chief executive officer, the associate administrator, and four assistant administrators, received a thorough orientation to the program from both the CASH representative assigned to Hospital W and the director of the CASH organization. Department heads were briefed by administrative staff members, as well as by the CASH representative, in monthly department head meetings.

While the orientation programs described would seem to be comprehensive enough, follow-up programs appeared to be quite limited during the first incentive year. Department heads were, however, encouraged during that year to stay within the 90 to 110 per cent performance index (PI) range, and those who had very low PIs were singled out by the CEO and asked to provide an explanation. In several departments, an invalid standard was offered, and accepted, as an explanation of performances not within the accepted range. In these cases, it was decided that a validation of CASH standards would be necessary. It was apparent, however, that low performance in some departments would not be explained by faulty standards.

Selection as Interview Site

Hospital W was selected as an interview site from among the 25 experimental hospitals because it was one of several that demonstrated a stable performance index during the first incentive year. As shown in Table 1, the hospital, according to the

Table 1. Total Hospital Summary Performance Indicators, by Incentive Experiment Years, and Computed Incentive Gains (Losses)

	First Year		Second Year		Third Year	
Item	*Base Year*	*Incentive Year*	*Previous Year*	*Incentive Year*	*Previous Year*	*Incentive Year*
Performance index*	85.09%	84.81%	84.81%	86.78%	86.76%	88.94%
Inpatient payroll*	$6,690,184	$6,711,302	$7,335,580	$7,169,991	$8,016,350	$7,771,700
Inpatient actual hours*	1,639,166	1,663,453	1,662,951	1,630,323	1,630,323	1,681,424
Inpatient standard hours*	1,394,766	1,410,794	1,410,276	1,414,720	1,414,527	1,495,508
Patient days	118,704	118,159	118,159	115,362	115,362	118,307
Occupancy	88%	88%	88%	85%	85%	87%

	First Year	Second Year	Third Year
Gross Savings (Loss)	($ 21,118)	$165,589	$244,650
Hospital Share of Gain (Loss)	($ 19,883)	$132,287	$153,098
Net Total Award (Loss)	($ 10,538)	$ 72,349	$ 88,522

**Previous year figures reflect adjustments related to wage differences or to changes in volume or standard hours.*

computation based on the incentive reimbursement formula, was a net total "loser" in the amount of $10,538 during that first year. (For the formula used to calculate gains [losses], refer to *Incentive Reimbursement Experiment*, Blue Cross of Southern California, 1973).

A review of individual departmental performances for the first incentive year of the experiment showed that the hospital's overall stable performance was reflective of individual cost center stability, inasmuch as the stability could not be attributed to any trade-off effect. As indicated, stability was typical of a number of the experimental hospitals, and it was considered as important to visit stable institutions as it was to visit institutions demonstrating incentive gains or losses.

It should be noted here that Hospital W was one of two hospitals selected as an interview site prior to completion of the experiment. In part, the purpose of conducting the first interviews at these two sites was to pre-test the survey instrument and to gain insight into what might be expected in future site visits. The initial site visit to Hospital W was conducted toward the end of the second incentive year of the experiment. Accordingly, it was decided that the initial visit would focus on the hospital's performance during the first incentive year. At the completion of the experiment, follow-up interviews with two of the interviewees would focus on the second and third incentive years to determine ways in which the hospital improved enough to receive an incentive award.

Indepth Studies

Four departments at Hospital W — two service departments and two professional departments — were selected for indepth data gathering and review. The four were the:

- *Admitting Department*, which demonstrated a relatively low but stable performance;
- *Dietary/Cafeteria Department*, which demonstrated a high, stable performance;
- *Laboratory Department*, which demonstrated a high performance index — one that did not change during the first incentive year; and
- *Department of Nursing*, which accounted for the majority of the hospital's manpower resources and which showed no change in performance from base to first incentive year.

Tables 2 to 5 profile the performance of these departments during the experiment.

Accordingly, interviews were conducted with the department heads and the assistant administrator responsible for each of these departments. In addition, interviews were conducted with the associate administrator, the assistant administrator for fiscal services, the assistant administrator responsible for CASH-IRE, and the CASH representative. It should be noted that the associate administrator was interviewed in lieu of the chief executive officer because the CEO had assumed his responsibilities after the onset of the experiment.

Summaries of the interviews follow. These summaries are not, however, presented in the order in which they were conducted. The interview with the CASH representative, for example, is presented first, instead of last, because it provides an overview of Hospital W's experience with earlier CASH programs, as well as its experience with CASH-IRE. Other interviews are grouped by functional area — i.e., the interview with the head of the Admitting Department follows the interview with the assistant administrator responsible for admitting. Finally, follow-up interviews, where conducted, appear immediately after initial interviews.

EVALUATION INTERVIEWS

CASH Representative for Hospital W

As previously mentioned, two separate interviews were conducted with the CASH representative — one limited to results of the first incentive year, the other focusing on the second and third incentive years. The initial interview with the CASH representative also included the director and the assistant director of that organization.

Initial Interview

The CASH representative assigned to Hospital W had served in that capacity since early 1969, predating the onset of CASH-IRE. This continuing experience qualified him to comment, retrospectively, on the experience of this hospital vis-à-vis the experiment.

Prior to discusson of the experiment, however, the interview focused on the hospital's previous experience with the CASH organization. Hospital W was one of the first CASH members. As early as 1963, this hospital began implementing the departmental labor performance improvement programs as they

Table 2. Department Summary Performance Indicators — Base, First, Second, and Third Incentive Years — Admitting

Item	Base Year	Incentive Years: First	Second	Third
Performance index	61%	60%	62%	78%
Admissions	18,592	18,329	17,449	17,748
Standard hours	21,631	21,389	20,579	29,867
Actual hours	35,716	35,456	33,441	26,911
FTE variance*	(7.41)	(7.40)	(6.76)	3.18

Table 3. Departmental Summary Performance Indicators — Base, First, Second, and Third Incentive Years — Dietary/Cafeteria

Item	Base Year	Incentive Years: First	Second	Third
Performance index	105%	104%	109%	114%
Patient days	118,704	118,159	115,362	118,307
Standard hours	146,471	146,117	144,299	146,403
Actual hours	139,662	139,876	132,360	128,435
FTE variance*	3.58	3.28	6.28	9.45

Table 4. Departmental Summary Performance Indicators — Base, First, Second, and Third Incentive Years — Laboratory

Item	Base Year	Incentive Years: First	Second	Third
Performance index	100%	100%	109%	127%
Tests	351,207	366,881	427,250	488,218
Standard hours	101,637	102,483	112,146	123,339
Actual hours	101,593	102,761	102,450	96,903
FTE variance*	0.2	(.14)	5.10	13.91

Table 5. Departmental Summary Performance Indicators — Base, First, Second, and Third Incentive Years — Nursing

Item	Base Year	Incentive Years: First	Second	Third
Performance index	86%	86%	86%	86%
Patient days	118,704	118,159	115,362	118,307
Standard hours	674,013	673,546	645,226	668,225
Actual hours	784,654	785,587	747,176	776,969
FTE variance*	(58.23)	(58.96)	(53.65)	(57.23)

**FTE variance is actual hours minus standard hours divided by an estimated average work year of 1,900 hours.*

were developed by the CASH organization. These early programs were operationalized in such functional areas as housekeeping, dietary, nursing, and the business office. The Department of Nursing implemented CASH programs on all of its units and, subsequently, the department's overall performance was reported to have improved significantly. Although on contract at the time the early programs were implemented, the Housekeeping and Dietary Departments were also reported to have improved their performance through participation in CASH. The original CASH program for the Business Office had been initiated at this hospital. However, a short time before the interview, an updated version of this program had been operationalized. Both the original and the revised programs were reported to have improved the performance of the Business Office.

The director and the assistant director of CASH confirmed that Hospital W had been most receptive to CASH and its programs, had actively implemented these programs, and had followed through on them. In the opinion of the three interviewees, the hospital had significantly benefited from its participation in CASH programs.

The CASH Labor Performance Control (LPC) program, introduced at Hospital W in early 1969, was fully operational approximately three to four months prior to the onset of CASH-IRE. The hospital's administrative staff had been oriented to the LPC program by the director of CASH and the CASH representative; subsequently, the CASH representative held individual meetings with department heads, in the presence of the chief executive officer and/or members of the administrative staff. The LPC program was reported to have been very positively received by the administrative staff and the department heads. Thus, prior to the onset of CASH-IRE, the labor performance portion of the experiment, i.e., the LPC program, had been implemented and operationalized at this site hospital.

As indicated, CASH-IRE had been introduced into an organization that was well oriented to industrial engineering techniques, particularly those of CASH. The hospital's overall base-year performance index of 85 per cent was thought to be indicative, in part, of the hospital's enlightened management and its previous involvement with the CASH organization.

In the opinion of the CASH representative, the hiring of a trained management analyst as an assistant administrator during the first incentive year was the only significant factor — internal or external — that might have affected Hospital W's performance during that period. With respect to the addition of the management analyst, the CASH representative corroborated an interview with the analyst in which the latter stated that his well-defined, long-range plan excluded improvement of the hospital's performance index as a high priority effort during the first incentive year.

The CASH representative described the hospital's chief executive officer* as having a strong desire to improve the hospital's performance index. As early LPC reports (pre-CASH-IRE) were generated, they were, in the words of the CASH representative, "followed like the Bible. . . . She put the low performers on the spot." The CEO was reported to have reviewed monthly LPC reports and arranged individual meetings with department heads whose departments were reflecting low performance indices. At these meetings, the CEO urged the department heads to take steps to improve the index — an approach that continued through implementation of CASH-IRE. Upon his arrival, the management analyst assumed responsibility for reviewing monthly LPC reports and forwarding evaluations of those reports to the CEO. It was reported that the CEO continued to hold meetings with heads of low-performing departments.

The CASH representative pointed out that only three or four departments in this hospital registered poor performance indices during the first incentive year. These were the areas that the CEO monitored particularly. Two of them were identified by the CASH representative as surgery and admitting. Somewhat in support of these departments, he indicated that their performance indices did not deviate significantly from the median performance index of all departments of hospitals participating in the CASH LPC program.

Despite the aforementioned efforts, Hospital W's overall performance, and the performance of its component departments, registered an extremely stable PI during the first incentive year. The performance index changed insignificantly from the base year. The interviewees offered three possible explanations for this stability:

1. The base-year performance index of this hospital, as with all other experimental hospitals, was computed on a retrospective basis. It was not until Blue Cross completed its audit

*The chief executive officer at the time CASH-IRE was initiated.

that the hospitals had valid performance indices for their base year. In the case of Hospital W, and in the case of several other hospitals, the base-year performance index computed by CASH — to the best of its ability — was lower than the performance index ultimately computed from audited figures. Both CASH and the administration of Hospital W were projecting the hospital as a potential "winner," on the basis of the unaudited base-year performance index. Unfortunately, this performance index was two to three percentage points less than that calculated with audited figures. It was not until the first incentive year had been almost completed that an audited performance index was computed for the base year. As a result of these circumstances, Hospital W, which expected to be a winner for much of the first incentive year, proved to be a "loser." In the opinion of the CASH representatives, Hospital W's projected winning status may have lulled the hospital into a false sense of accomplishment and may, in fact, have been related to its ultimate status as a minor loser for the first incentive year.

2. During the first six months of the first incentive year, the hospital experienced an occupancy rate of approximately 90 per cent. In the middle of 1970, occupancy dipped from 90 per cent to 80 per cent. It then gradually rose to just below 90 per cent before dipping again to slightly more than 81 per cent at the end of the year. The CASH representatives said they believed that the sharp decline in occupancy, without a commensurate adjustment in staffing patterns, may have contributed to the stable performance index of this hospital during the first incentive year. At the time of the interview, it was believed (without documentation) that the hospital might have been generating an improved and most favorable performance index during the first half of the incentive year but that the overall PI was offset by a decline in the performance during the second half of the year. (A graphic display of the performance index of this hospital, compared with that of its occupancy rate during the first incentive year, reveals that this explanation is of limited value only. During the first six periods of the first incentive year, the hospital's average performance index was 85 per cent, whereas in the latter six periods it was 84 per cent.)

3. The interviewees reported that Hospital W registered one of the higher performance indices among the experimental hospitals. They suggested that the margin for improvement in this institution was rather small and that little or no improvement in performance might have been expected.

With respect to the motivational effect of the financial incentive, the CASH representative indicated that in his opinion it had little or no effect on the administrative staff of the hospital. He also stated that department heads were, primarily, concerned with day-to-day operations of their department and were not motivated by the financial incentive of the experiment.

The assistant director of CASH agreed with the foregoing assessment; it was his general impression that the financial incentive offered by the experiment had little or no motivational effect on the staffs of any of the experimental hospitals. He indicated that this was, in part, a result of the manner in which the CASH organization and Blue Cross handled the financial incentive. He stated that, perhaps, not enough effort was given to making the potential financial reward highly visible and real to the CEOs of the individual hospitals. He stated further that, if the experiment were to be duplicated, a concerted effort would be made to induce the CEO to identify operational needs, ranging from the purchase of equipment to the funding of a staff party, and to set funding of the activity as the goal of a given incentive year. He also pointed out that the form of payment had not been made clear to the CEOs — a single cash or check payment, multiple cash or check payments from the various third-party payers, or possibly a credit against the dollars owed by the hospital to the fiscal intermediaries. In the opinion of the CASH assistant director, all of the foregoing contributed to the fact that financial incentive had no positive motivational effect on the CEOs or on the key staff members of the experimental hospitals.

During this interview with CASH personnel, inquiries were made with respect to the four departments that were site visited by the evaluation team. The CASH representative commented as follows upon the performance of these departments during the first incentive year.

Admitting Department. This department had a performance index of 61 per cent in the base year and 60 per cent in the first incentive year. According to the CASH representative, it was one of the departments that the CEO took notice of,

encouraging the department head to improve the department's performance index. In this regard, the CASH representative re-emphasized the fact that, despite the low performance index this department did not deviate significantly from the median performance index of all admitting departments of all hospitals participating in the LPC program. The CASH representative also indicated that, despite the attention paid to this department by the CEO, no specific, systematic steps were taken to improve its performance index. He stated further that the department was, at that time, undergoing a study by the administrative staff of the hospital and that a program was under way to validate the standards for it. If findings so indicated, a staffing adjustment would be made, consistent with the demand for service. The CASH representative said a target of an 80 per cent performance index had been established for this department.

Laboratory and Dietary Departments. These departments had performance indices of 100 and 105 per cent, respectively, for the base year and 100 and 104 per cent, respectively, for the first incentive year. The CASH representative indicated that they were well-managed departments — as reflected by the performance index. Both the hospital administrative staff and the CASH organization were largely satisfied with the performance of these departments and, therefore, no special effort was made to improve performance.

Department of Nursing. During the first incentive year, the Department of Nursing remained stable, generating an 86 per cent performance index in both the base and the first incentive years. The CASH representative emphasized that the nursing department had, for many years, participated in CASH programs and had considerably improved its performance over these years. The department's 86 per cent performance index was perceived as acceptable. He said that no special effort was made to improve this department's performance index during the first incentive year and that the stability was reflective of the stable demand for service (occupancy).

In summary, the CASH representative indicated that Hospital W was, historically, a well-managed institution that had previously operationalized CASH programs. He said he believed that both the quality of management and the use of CASH programs had contributed to the hospital's relatively high efficiency and effectiveness. He also pointed out that the hospital administrative staff and its department heads were generally receptive to CASH and to its programs and had in the past cooperated with the CASH organization. The hospital and its key staff members received the LPC and CASH-IRE programs with enthusiasm. Their seeming inability to improve the hospital's overall performance index during the first incentive year was summarized as, perhaps, deriving from: (1) an initial high performance index, with relatively little margin for improvement; (2) a false sense of accomplishment, resulting from projections based on an unaudited and inaccurate base-year performance index; and (3) an occupancy trend that may have offset efforts to improve the performance index in the first half of the first incentive year.

The CASH representative also stated that the hospital was relying heavily upon its assistant administrator responsible for management analyst services to improve generally the hospital's organization and performance, in part through the utilization of the CASH LPC program. The fact that this assistant administrator designated improvement of the hospital's performance index as an effort that would not be initiated until the latter part of the second incentive year was also perceived as contributing to the stable performance of this hospital during the first incentive year. The CASH representative indicated that he was anticipating a slight improvement in the hospital's performance in the second incentive year and a major improvement in the third year.

Follow-up Interview

At the conclusion of the experiment, a follow-up interview was held with the CASH representative for Hospital W. The intent of the interview was to elicit information from the representative regarding the hospital's performance during the second and third incentive years of the experiment, which resulted in incentive payments in both years.

The representative stated that the administration of the hospital maintained a positive attitude toward the LPC program and that staff members, particularly the assistant responsible for CASH-IRE, were enthusiastic about earning an incentive payment for the second and third years of the experiment. The administrator remained concerned with low PI departments and relied on the assistant administrator to undertake studies to validate standards and to develop recommendations for improving performance indices in these departments. The level of awareness of CASH-IRE among department heads did not change appreciably during the second and third years of the experi-

ment. Department head personnel continued to be concerned, primarily, with day-to-day operations.

In seeking an explanation for the hospital's improved performance and for the receipt of incentive payments in the second and third years of the experiment the representative commented that action had been taken to staff more closely in accord with variations in demand for service. He explained that the management analyst developed a system of predicting occupancy so that the hospital could avoid repeating its experience during the first experimental year. At that time occupancy dipped and the hospital, unprepared, could not reduce staff commensurately. The representative explained that occupancy levels and related departmental workload volumes were predicted by the management analyst and the information distributed to department heads. The administration, in return, requested that department heads seek to schedule vacations and encourage leaves of absence during predicted low demand periods (occupancy and service). The CASH representative said he believed that this action contributed, in part, to the hospital's improved performance during the second and third years.

The representative was asked if action had been taken to improve the PI of low-performing departments. In response, he stated that specific programs had been undertaken in both the Admitting Department and the Business Office. He explained that a member of the hospital staff had been assigned the task of validating standards in the Admitting Department; he said he was unaware, however, of whether reductions in staff had taken place as a consequence of this study. (It should be noted here that hours worked in this department decreased approximately 2,000 hours from the first to the second incentive year.) The representative also indicated that a detailed study was conducted in the Business Office. He stated that, if staff reductions had been made, such reductions may have been offset by the fact that a data processing system had been installed and, for a period of time, both the manual and the automated systems were operating in parallel. The Business Office improved its performance index from 74 per cent in the first year, to 75 per cent in the second, to 77 per cent in the third. The representative added that a study was also planned in the Medical Record Department but was never undertaken.

During the course of this second interview, the representative said that the LPC program was used to a limited extent in this institution which he characterized as very progressive. He stated that the program tended to be used as a diagnostic tool in identifying low-performing departments. In the main, however, it was used as evidence to verify the effectiveness of department heads who managed their departments, in most cases, without active use of the LPC program. At that time, the representative still did not perceive the financial incentive to be a significant motivator in this hospital. He stated that the financial incentive represented a very small portion of the hospital's total budget and, hence, was not an important factor. He added that there had been some talk at the hospital of developing a plan whereby the incentive rewards might be shared with all employees, or at least with department heads.

The CASH representative was questioned regarding the reaction of the hospital staff to the 110 per cent charge-back feature of the incentive payment formula. He indicated that department heads were probably not familiar with this feature but that the administrative staff members, who were familiar with it, had not complained. He stated that, in his judgment, the several departments that operated at over 110 per cent PI were in no way inferior in quality to other departments in Hospital W, or in any other hospitals with which he had contact. One such overachiever was the Dietary Department, which closed with a 114 per cent performance index. The representative speculated that one explanation for this high performance index might be that equipment in the Dietary Department was more modern than the CASH standards provided for.

It was suggested, by the CASH representative, that, while the LPC program was one among many management tools used by Hospital W to determine and control resource allocations, it could not be characterized as having a large impact on the operation of the hospital. The representative indicated further that most actions taken by this institution were initiated by the administration. He expressed his favorable feelings toward the institution and indicated that, of all the experimental and non-experimental hospitals he was involved with, Hospital W was among his favorites.

Associate Administrator/Assistant Administrator

At the request of the associate administrator, the assistant administrator responsible for fiscal services also participated in this interview. Both individuals were most cooperative and displayed a substantial degree of sophistication in their understanding of the CASH Labor Performance Control

program and the Incentive Reimbursement Experiment.

During the interview, they indicated that Hospital W had been a member of the CASH organization since 1963. It had, in fact, been an active participant in CASH programs predating the LPC program and CASH-IRE. In response to probing designed to identify departments previously participating in the CASH program and to identify their degree of participation, interviewees could provide only the sketchiest of information. (According to the assistant administrator responsible for CASH programs, who was subsequently interviewed, the Department of Nursing was the only one that participated in other than a superficial manner.)

The associate administrator and the assistant administrator interviewed identified two factors that might have significantly influenced the hospital's performance: (1) the hiring of an assistant administrator — a trained management analyst — with direct responsibility for CASH programs and (2) the hospital's ongoing effort to improve and upgrade the scope and quality of services delivered.

The interviewees indicated that neither the individual department heads nor the hospital administration monitored the development of expanding services and improvement in quality and that, for the most part, the changes and improvements represented a need for increased manpower. Moreover, they said that, because records were not kept of these changes, the CASH organization was not aware of them and, hence, revisions in standard hours were not undertaken. The interviewees reasoned that, this being the case, they may have actually improved their performance during the first incentive year, even though such improvement was not evident because the standards had not been modified. (Again, the assistant administrator for CASH-IRE contradicted the interviewees' observation. He stated that every effort was made to monitor changes in departmental operations that might create a need for revisions in standards and that CASH was formally requested to make such adjustments. Full cooperation was received from CASH, he reported. Adjustments were made after a considerable time lag, but they always were made retroactive to the initiation of the original change. A standards revision in the Inhalation Therapy Department was cited as an example of such changes and related adjustments. The medical staff of the institution determined that the appropriate length of time for a given treatment should be 20 minutes, rather than the previously-allotted 10. The hospital requested that the time standard be adjusted to allow for the additional time required. A standard revision was subsequently made retroactive to implementation of the new policy.)

The interviewees were also asked a series of questions regarding their perception of the reasonableness of hospital costs, the adequacy of the level of efficiency, and the value of industrial engineering methods in general and the CASH LPC program in particular in controlling or reducing hospital operating costs. These individuals were asked to indicate their responses for both the hospital industry as a whole and their own institution. They responded that they believed that costs in the hospital industry were higher than they should be but that costs in their own hospital were about what they should be. Their perceptions were based on their observations of Hospital W vis-à-vis other hospitals operated by the same Order, as well as on their observations of hospitals of comparable size and scope of services. They supported their observations with data from CASH and from Hospital Administrative Services and with data generated by the central office of the Order.

With respect to the level of efficiency, the interviewees indicated that efficiency in the hospital industry was less than adequate, while in their own hospital it was more than adequate. The two interviewed said they thought that their high level of efficiency was owing to historic and ongoing efforts, including involvement with CASH, and to the presence of an assistant administrator trained as a management analyst. They said that, in relative terms, operating costs could be further reduced through the application of industrial engineering techniques.

The interviewees also said they believed that the hospital industry in general could significantly decrease costs through the application of industrial engineering techniques. Similarly, effective application of the CASH LPC program was perceived as a means of containing or reducing operating costs. According to the interviewees, the CASH LPC program had substantial application within their own institution and had produced cost savings. Even so, they agreed that additional cost savings could still be realized. With respect to the hospital industry as a whole, the interviewees commented that the industry could significantly reduce its costs through effective application of the LPC program.

The interviewees also pointed out that the LPC program was used by the hospital administration as

a control tool. When requests for additional personnel were made, the administration used the LPC report as one tool in determining whether the requests were justified.

The two administrators were asked to express their perception of the motivational effect of the CASH-IRE financial incentive at Hospital W, as well as at the experimental hospitals as a group. While they were unable to comment on the other experimental hospitals, the administrators indicated that their efforts to control costs were not at all affected by the CASH-IRE incentive. They stated that cost containment and/or reduction was part of their operational and professional responsibility and had been ongoing concerns of the hospital for a long time. They reported that the financial incentive neither prompted action that would not otherwise have been taken nor heightened action that had been taken.

Assistant Administrator for Personnel-Management Analyst Services

As stated previously, two persons involved in CASH-IRE — the CASH representative and the assistant administrator responsible for CASH-IRE — were interviewed twice during the experiment.

Original Interview

As already reported, the assistant administrator for personnel and management analyst services was a trained management analyst. Among his responsibilities were the CASH and CASH-IRE programs.

This assistant administrator had assumed his position at approximately the same time as the onset of CASH-IRE. As already stated, attention to CASH-IRE was *not* among his first priorities. He viewed the CASH LPC program as one of several inputs to the management information system he was developing. Since other components of this information system received priority, specific attention was not given to the LPC program until mid-1971. Initially, the assistant administrator's efforts related to the LPC program were limited to analyzing LPC reports and forwarding comments to the hospital's chief executive officer. In turn, administrative action took the form of arranging meetings with department heads of low-performing departments and urging them to take steps to improve performance indices.

The interviewee generally indicated that Hospital W ranked high, with respect to effectiveness, efficiency, and cost per unit of service, vis-à-vis other hospitals. He stated that the hospital, historically, had been concerned with these issues, had recruited and trained a competent management team, had employed consultants to upgrade management through training programs, and had hired an individual like himself. He said these activities had their impact and, as a result, the hospital was, generally, more advanced than others in the industry. Because of Hospital W's experience, he said he believed that the hospital industry could similarly benefit from such programs. The assistant administrator perceived the CASH LPC program as a valuable management tool, describing it as one part of the complete data information system established by the institution.

The assistant administrator did observe, however, that a major shortcoming of the LPC program might be the lack of validity of standards in certain departments. Under his direction, a major program had been undertaken to validate standards in a number of departments; this project was under way at the time of the interview. The program, as described, was primarily an internal effort, with little input from CASH. If CASH standards were found to be invalid, the intent was to inform the CASH organization and request that new, validated standards be substituted for those previously developed. The interviewee noted that, in the past, standards-change requests had resulted in affirmative responses from CASH. He also noted that, while the changes often took several months, the revised standards were made retroactive to an appropriate date.

The interviewee indicated that, during the first incentive year of the experiment, less than 10 per cent of his time was spent in activities related to CASH-IRE. At the time of the interview, he indicated that approximately 50 per cent of his time was related to the program, inasmuch as the standard validation effort was in full operation at that time.

With respect to the motivational effect of the financial incentive, the interviewee indicated that he perceived the administration as being moderately affected by the financial incentive. He stated that he was very much affected by the financial incentive and hoped that his previous and present efforts would accrue some financial incentive payments in the second year and, particularly, in the third year of the experiment. The interviewee also stated that the motivational effect of the financial incentive was limited to the hospital administration because other hospital employees were not aware of its existence.

Follow-up Interview

At the conclusion of the experiment, a follow-up interview was held with this assistant administrator, in order to gain perspective on Hospital W's involvement with the experiment during the second and third incentive years.

During the second interview, he stated that both he and the administration remained supportive of the experiment. As indicated in the first interview, they had begun to take steps that might result in an incentive payment reward. The interviewee described two hospital-wide undertakings that he believed might have contributed to the hospital incentive payments earned in the second and third years of the experiment. The first occurred in 1971 (which coincided with the second incentive year of the experiment). At that time, this assistant administrator's office developed a departmental performance chart that, on a month-by-month basis, graphically portrayed performance indices and provided information on work-count, required hours, and actual hours, together with numeric indications of performance indices. Each administrative staff member received a batch of charts for the departments for which he or she was responsible. The charts were reviewed by this person and forwarded to individual department heads. The administrator indicated that he believed this process significantly increased the awareness of both administrative staff members and department heads and generated higher levels of concern among them. He stated that this concern was manifested by inquiries, to his office and to the offices of other assistant administrators, regarding what could be done to improve performance indices. In some cases, special studies were requested in specific departments. Department heads were encouraged to increase their performance indices to the optimal 90 to 110 per cent range.

The second hospital-wide undertaking mentioned by the assistant administrator was related to the budget process. The assistant administrator indicated that LPC program standards were incorporated in the budget process. Demand projections were made, and staffing requirements were estimated for the projected demands. Estimates were based, in part, on standard hours required, as established by CASH.

The assistant administrator commented that it was exceedingly difficult to assess the extent to which these two hospital-wide activities contributed to the hospital's overall improvement in PI and to the subsequent receipt of incentive payments for the second and third years of the experiment. He did say, however, that in his opinion these activities contributed in some way.

The interviewee also described two specific experiment-related undertakings — one of them, he believed, impacted on the hospital's improvement; the other one did not. The first undertaking, which he believed contributed to the incentive reward, was the indepth studies made of the Admitting Department and the Business Office. Detailed studies were undertaken in these two departments for the purpose of validating standards. In addition, procedures, policies, and forms were revised to improve effectiveness and increase productivity. The interviewee stated that, in both cases, staffing levels were reduced. It should be noted here that the Admitting Department did, in fact, improve from a 60 per cent to a 78 per cent performance index between the first and third incentive years. The Business Office, however, remained fairly stable, improving from 74 per cent to 77 per cent during this period. The administrator commented that, perhaps, the staffing reductions in the Business Office might have been accomplished after completion of the experiment and, hence, were not reflected in it.

The second experiment-related undertaking was the studies conducted in several other departments, including Inhalation Therapy, Maintenance, and Accounting. The assistant administrator stated that, in each case, the standards were revised and the subsequently computed performance indices (higher) more accurately reflected the level of productivity of these departments. He indicated that, since the standards changes were retroactive to the start of an incentive period, he did not have the impression that these changes contributed in any way to the hospital's overall performance. It should be noted, however, that the Inhalation Therapy Department's performance index did increase from 92 per cent to 120 per cent, while the Maintenance Department's index increased from 85 per cent to 102 per cent. These comparisons were made between the first and the third incentive years.

In response to specific inquiries regarding the four departments previously examined in depth, the assistant administrator commented as follows. The *Dietary* and *Laboratory Departments* continued to operate at a very high level of productivity. He indicated both departments were run by outstanding managers, as reflected by the performance index of each. He added, however, that the unusually high performance index of the Labora-

tory Department was, in part, the result of invalid standards. To support this statement, he cited the fact that, subsequent to the onset of CASH-IRE, the laboratory had acquired a Coulter counter, which greatly enhanced the department's productivity. However, despite the addition of this equipment, no standards revision had been instituted.

With respect to the Department of Nursing, the assistant administrator stated that nursing was reluctant to do anything to improve productivity. The interviewee also commented on the surgery unit of the Department of Nursing. It was a low-performing department but one that was not examined in depth. He pointed out that, despite the encouragement of the administrative staff, no action had been taken to improve productivity in this unit. Actions taken in the Admitting Department have already been described.

The interviewee restated that he was probably the only individual in the organization that had been motivated, at first, by the financial incentive. He said that, after receipt of the first incentive payment, the administrative staff expressed interest in, if not motivation for, earning further incentive payments. He further commented that the level of motivation could, generally, have been greater if Blue Cross and CASH had done more to publicize it. However, he said that, in his opinion, CASH had not been in a particularly good position to do so.

The assistant administrator said that $25,000 of the incentive payment received had been set aside as an educational fund to support educational programs and to provide tuition reimbursement for employees. He added that the hospital was still in the process of deciding how to use the remaining $125,000 (approximately) of incentive payments received. The administrative staff was considering various alternatives to redistributing the balance of the incentive payment to employees. Increased pension benefits were among plans being considered for redistributing the funds. He stated that, ideally, the money would be distributed to departments and employees on the basis of the extent to which they contributed to the hospital's having earned the payment. The administrator said he did not think this was feasible because, among other things, of the questionable validity of standards.

The interviewee was queried regarding the over 110 per cent charge-back provision of the experiment. He stated that, in his opinion, because several departments had performed at over 110 per cent, the hospital was, in effect, being penalized or that it did not receive an equitable incentive reward payment. He stated, further, that he would prefer to see some alternative method of examining the quality of performance in departments that performed at over 110 per cent. In such a method, charge-backs would not be made if performance was considered satisfactory. In response to a question concerning the initial performance index, the interviewee stated that he thought "it was awful that some hospitals received incentive payments merely because they started with such a terrible base-year performance index." He stated, "There should be a minimum level of performance index before incentive payment rewards are made."

The interviewee was asked whether the hospital could have achieved the same results without IRE or without the LPC program. His initial reaction was that the hospital would have achieved the same results without CASH-IRE. However, he subsequently qualified his statement by saying that actions taken in the second and third year of the experiment increased levels of awareness and concern on the part of department heads. Administrative staff members were being asked by department heads about how much might be earned for each incremental improvement in the performance index. He stated that questions such as these suggested to him that CASH-IRE may have contributed, in part, to the hospital's improved productivity over the time period in question. Regarding the LPC program, he stated that it did, in fact, play some part in facilitating the accomplishments of the hospital. He stated, "We needed base-line criteria for measurement and the LPC program provided that."

At the close of the interview, the assistant administrator commented on his feeling that the timing of the experiment had been particularly bad. He explained that, at the onset of the experiment, the hospital was involved in planning construction and, subsequently, involved in the actual construction. He indicated that construction activities commanded a great deal of administrative staff time, some of which might ordinarily have been devoted to experiment-related activities. He also indicated that construction, itself, may have detracted from the accomplishments of the hospital during the experimental period. He commented that construction activities required additional time of the Housekeeping and Maintenance Departments and, generally, affected the operation of some other departments. He indicated that, with the exception of the Maintenance Department, no adjustments had been made to standards to account for construction-related activity. Finally, the assistant

administrator pointed out that his arrival at the time of the onset of the experiment did not permit the hospital to take full advantage of what the experiment had to offer. He indicated a strong feeling that managers first had to be trained in order to take full advantage of schemes like the incentive reimbursement experiment. He stated that much of his initial time was taken training departmental and supervisory level managers, and, thus, for much of the life of the experiment, these individuals were capable neither of fully using the LPC program nor of taking maximum advantage of the benefits of IRE. He noted that the foregoing comments applied to himself too.

At several points throughout the interview, the interviewee digressed to comment, "We should have done more." He indicated that, if the experiment were repeated, starting at that time, it would be handled in an entirely different manner. He stated that, initially, department heads would be more fully involved. Standards would be explained in detail, and the potential rewards would be outlined for department heads. Further, the program would be tied more closely to the hospital's management system; in fact, it would be tied directly to management performance evaluations. He also indicated that employees who had not been aware of the experiment would also be involved if the experiment were repeated.

Hospital Personnel by Functional Department

As previously stated, four departments in Hospital W were selected for indepth review. Following are summaries of interviews conducted with personnel in each of these functional departments.

Admitting Department

Among the individual departments at Hospital W, the Admitting Department demonstrated one of the lowest performance indices — 61 per cent during the base year, and 60 per cent during the first incentive year. (It should be noted here that, prior to CASH-IRE, this department had not been involved with any of the CASH programs.)

Assistant Administrator—Admitting. The assistant administrator who had been interviewed jointly with the associate administrator had direct line responsibility for the Admitting Department. Because of time constraints, it was not possible to interview him in depth with respect to the performance of the Admitting Department during the first incentive year. He was asked, however, to comment on the Admitting Department's participation and performance with respect to CASH-IRE.

The assistant administrator was very much aware of the relatively low performance of the department. He speculated that the standards developed for the Admitting Department were invalid and reported that the Admitting Department was, at that time, under study, in an effort to validate the standards. He explained further that Hospital W had a tradition of catering to its medical staff, as well as to its patients. Physicians were given highly individualized attention by the admitting staff, which included frequent telephone communication with their offices and last-minute scheduling of surgery, resulting in minimal use of pre-admission techniques. Hospital W believes that the Admitting Department, as the patient's first contact with the hospital, sets the tone for the entire hospitalization. Accordingly, the admitting staff makes every attempt to treat patients in an individual manner, to give them prompt attention, and to provide other amenities aimed at reducing anxiety during the stress-provoking experience of being admitted to a hospital. The assistant administrator speculated that the standards developed by the CASH organization did not account for the personalized attention offered physicians and patients, which he believed explained, at least in part, the department's low performance index.

Admitting Department Director. The department director, who had been responsible for the department for nine years, was most cooperative during the interview. Throughout the interview, however, she used the evaluation team as a "sounding board" for anxiety derived from the expressed concern of the administration over the department's low performance index. (At the time of the interview, the Admitting Department was undergoing the aforementioned study aimed at validating performance standards.)

During the interview, an attempt was made to assess the attitudes of the interviewee, with respect to her perceptions of the reasonableness of operating costs, level of efficiency, and value of industrial engineering and of the CASH LPC program. Rather than responding to these attitudinal questions, however, the interviewee continually expressed her anxiety at being viewed critically by the administration. (As noted previously, her perceptions may have been unsubstantiated, inasmuch as the administration had also questioned the validity of the standards developed by CASH.) The interviewee reiterated the comments of the administration. She stated that the hospital and, particularly, the

Admitting Department catered to physicians and patients both, which required more time and energy than most admitting departments provided. The department head alleged that the standards did not reflect this extra attention and this, in part, was the reason for the relatively low performance index. The interviewee stated that she and her staff had always strived to perform well and that she was extremely concerned and upset about the situation.

The head of the Admitting Department offered reasons other than the alleged catering for the low performance index. These reasons were related to the following changes that took place after the onset of CASH-IRE:

1. The Admitting Department assumed responsibility for preparing admission laboratory order/charge slips, which were previously completed at the nursing stations.
2. The Medical Record Department had twice changed numbering systems, which resulted in procedural changes for the Admitting Department.
3. Numerous form changes had been initiated that required both procedural changes and additional time spent by admitting office personnel.

The interviewee stated that standards had not been adjusted to accommodate these changes. (It should be noted that the department head showed a certain degree of sophistication in recognizing that procedural changes might indicate a necessity for standards revision. However, the examples cited would appear to represent minor issues. It is even possible that standards might be decreased rather than increased in two of the three examples.)

The interviewee was asked a series of questions regarding the CASH LPC program. She indicated that she was aware of the LPC program and the fact that the hospital was participating in an incentive reimbursement experiment. The amount of time spent by the interviewee in direct involvement with CASH-IRE, she said, was negligible; she indicated further that she had not received a CASH report in several months. During the interview, this department head expressed her feelings on a number of issues related to the LPC program. She rated her initial response to the program as very positive. In contrast, her present response to the LPG program she rated as negative. She explained that this was a result of unfair criticism expressed by the performance index. Consistent with earlier comments, she stated that the LPC standards for this department were very inaccurate. She ascribed neither positive nor negative feelings to the value of the LPC program in improving departmental effectiveness, efficiency, or quality of service. The interviewee did indicate, however, that she perceived the Department of Nursing to have been positively influenced by the LPC program, with respect to the quality of service delivered.

For the most part, it was exceedingly difficult for the interviewee to focus on the first incentive year in responding to specific questions. In concluding the interview, she was asked to comment on the general impact of the LPC program on the Admitting Department during the first incentive year of CASH-IRE. Her response reiterated previous comments: The department has, historically, been well run, in a conscientious and effective manner. The performance index does not reflect this and, hence, is of little value. The low performance index is explained by the invalidity of the performance standards developed. The department head closed the interview by once again expressing her anxiety and unhappiness with the current effort to validate the standards of the Admitting Department.

Dietary/Cafeteria Department

The Dietary/Cafeteria Department at Hospital W demonstrated a high labor performance index during the base and first incentive years of CASH-IRE. The stability of the department is indicated by its performance index, which was 105 per cent for the base year and 104 per cent for the first incentive year.

Assistant Administrator—Dietary/Cafeteria Department. The assistant administrator with direct line responsibility for the Dietary/Cafeteria Department (and also for the Laboratory Department) was asked for his perceptions of the operations of the Dietary Department vis-à-vis CASH-IRE. In response, he stated that the department was operated by an exceptionally competent individual, who was in full control of his department. The head of the Dietary/Cafeteria Department, he said, had done an excellent job in improving the quality of the food and the service. Moreover, he stated, "This has been accomplished as a result of the initiative of the department head in developing and instituting programs and practices entirely independently of CASH." In the assistant administrator's opinion, the single value of the CASH organization, with respect to this particular department, was to verify its excellence.

Director of the Dietary/Cafeteria Department. The director of this department, who had held that position for four years, was responsible for dietary services, the cafeteria, and the catering services. He proved to be most cooperative during the interview and demonstrated an unusual degree of competence within his areas of responsibility, as well as an unusual understanding of the CASH LPC program.

The interviewee requested that he be given the opportunity of making a statement prior to the formal interview. He stated that the LPC program, generally, had merit for application in most departments of the hospital. However, it was his considered opinion that, in hospitals with 250 beds or more, the validity of the LPC program was questionable because of the standard basis used. He explained that the computation of standard hours was based on census figures, for both monthly and cumulative reports. In his department, he said, as in most departments in hospitals of 250 beds or more, the dietary function per se accounts for approximately one-half of departmental resources, with the cafeteria and catering services accounting for the remainder. To compute a performance index that is a ratio of total actual hours to total standard hours, with the denominator a function of census times standard hour allowances, does not, in his opinion, accurately reflect the level of efficiency in utilizing manpower resources. (It should be noted that, in constructing the standards, the CASH organization does take into account the variation in mix of major outputs of individual departments. The Dietary Department provides the input data for construction of standards, i.e., tallied meals for inpatients, cafeteria meals, catered meals, and so forth. However, it should be noted that data were accumulated for a 28-day period and may not reflect either seasonal variation or changes in mix of tasks over time.)

For the reason just described, the interviewee stated that data from the LPC program were of little or no value to him for determining manpower needs, for scheduling, or for other staff use. The interviewee stated that the performance index coincidentally demonstrated his own perceived efficient use of manpower in the department. He stated that he achieved this efficiency independently of the Labor Performance Control program.

The interviewee indicated that, with respect to operating costs and level of efficiency, he believed that the hospital industry could substantially improve. With respect to his own department's operation, he stated that, given the constraints of the present physical plant, equipment, food service system, and the demands of other departments on his own, operating costs and level of efficiency approached the optimal.

Laboratory Department

During the base year of CASH-IRE, the Laboratory Department had a performance index of 100 per cent — an index that did not vary during the first incentive year.

Assistant Administrator—Department of Laboratories. In response to questions about the operation of the laboratories, the assistant administrator made comments similar to those he made about the operation of the Dietary/Cafeteria Department. He indicated that the department was well organized and well managed. He stated that this was accomplished independently of CASH. In his opinion, the efforts of the director were corroborated by the department's 100 per cent performance index.

Director of the Department of Laboratories. The director was a board-certified pathologist, who had assumed the responsibilities of director in July 1971. This individual had been a practicing pathologist in the department for a number of years and had been actively involved in the administration of the department for several years preceding his appointment as the director.

The interviewee was asked for his perception of the appropriateness of the operating costs in pathology departments generally and in his own specifically. He stated that the costs of operation were about right in both the hospital industry and his hospital. The interviewee said he believed that the level of efficiency in laboratory departments throughout the hospital industry was somewhat less than adequate, whereas it was about adequate in his own department. He qualified the statement by saying that pathologist-owned laboratories were generally the most efficient. He stated further that hospital laboratories, with the possible exception of laboratories in teaching hospitals, were generally operated efficiently. The interviewee also stated that he had never seen or heard of a laboratory in which industrial engineering techniques had been effectively applied, but he said he believed that such techniques had potential value both for his department and for departments in other hospitals.

The director of the Laboratory Department was aware of the CASH LPC program and had a vague recollection that the hospital was participating in

an incentive reimbursement experiment. He stated that the amount of his time spent in activities related to CASH-IRE was negligible. "I read the monthly Labor Performance Control report and post it on the bulletin board," he said.

The interviewee indicated that the department was organized and operated under his direction. He said that staffing and production levels were his responsibility and that decisions related to them were made independently of CASH LPC program indicators. He did indicate, however, that, on occasion, he used the high performance index of the department as justification for additional manpower requests.

The interviewee stated that the CASH data were of little or no value to him. His rationale was that the standards had been based upon a test count no longer valid. He said that the standards had become obsolete in view of the increasing demand for more complex tests and of the ever-changing mix of tests that his department was required to perform.

It is of interest to note that, in an interview, the assistant administrator responsible for CASH-IRE indicated that the high performance index of the Laboratory Department may not have been reflective of its level of efficiency. This speculation was also based on the questionable validity of the standards. He said that the standards for that department had been developed prior to the installation of a Coulter counter and had never been revised. (The Laboratory Department was among those scheduled for validation of standards.)

Department of Nursing

A comparison of the base and first incentive years showed that the Department of Nursing maintained a highly stable performance pattern. During this period, standard hours increased by 588 and actual hours increased by approximately 1000. On the basis of an average annual total of approximately 674,000 hours for the former and 785,000 for the latter, the stability of this department's manpower resource is underscored. This stability is further reflected in the performance index, which was calculated at 86 per cent for both the base and the first incentive years.

Assistant Administrator—Nursing. The interview with nursing personnel was conducted with the assistant administrator responsible for nursing services and three staff members. Included among these staff members were the director of inservice education, a staff nurse, and a nurse specialist who acted in a management capacity. The summary that follows represents the collective opinions of these individuals. Except where indicated, there was consensus.

The same series of attitudinal questions asked of other hospital staff members was asked of the nurses. In only one area did they believe they could comment constructively on situations other than their own. In this instance, they agreed that the CASH LPC program could significantly decrease operating costs in the hospital industry. With respect to their own department, the group said it believed that operating costs were about what they should be. Similar feelings were expressed with respect to the level of efficiency in the department. It was indicated, however, that "there is always room for improvement." The group viewed the application of industrial engineering methods as a viable approach to decreasing operating costs in Hospital W and said it believed some decreases could be achieved there. When asked about the motivational effect of the financial incentive of CASH-IRE, the staff nurse said she was not aware of any financial incentive related to the CASH program. The other members of the group said they were aware of the financial incentive but were unable to respond to the question.

Throughout the attitude assessment portion of the interview, the interviewees digressed to comment and offer opinions on the CASH organization in general and on the LPC program and CASH-IRE in particular. They indicated that, when the CASH organization first became involved with the Department of Nursing in 1964, the department displayed substantial resistance to both its representatives and its programs. The resistance by the nursing staff gradually decreased, they said; they described it at the time of the interview as minimal. The interviewees generally supported the CASH programs and recognized their potential value in optimizing efficiency in both the hospital in general and the Department of Nursing in particular.

While the group was generally supportive of the CASH organization and of its techniques, members were unable to identify related actions taken to improve the performance index, either in the Department of Nursing as a whole or in any of its individual component units. *It should be noted here that the group tended to point out the inadequacy of standards in areas within the department that demonstrated low performance indices. On the other hand, they took pride in units that*

demonstrated high performance indices and tended to ignore the nursing units in the middle, despite their expressed belief that the LPC program could improve the level of efficiency.

It is important to point out that this group did demonstrate a good understanding of the LPC program and was able to present concrete examples of the inadequacy of standards in certain units within the Department of Nursing. Group members pointed out, for example, that a sub-acute intensive coronary care unit had been opened in 1971 and that no revision of standards had been undertaken by the CASH organization. On the other hand, the assistant administrator responsible for CASH-IRE reported that the new unit had been brought to his attention and that he had requested that CASH institute a retroactive change in standards for the Department of Nursing. It should be noted here that the time lag in accomplishing these standards changes apparently fosters a negative attitude among hospital staff members. The nursing group interviewed also pointed out that there were units within the Department of Nursing, e.g., the emergency room, obstetrical unit, and operating room, that demonstrated low performance indices, which, in turn, tended to reduce the department's overall performance index. The low performance indices in these departments were explained by the fact that the hospital was required to have personnel available to meet the erratic demands of such units.

One member of the group astutely observed that some departments registering high performance indices were unwilling to undertake change (advocated by the Department of Nursing), fearing that it might reduce their performance index. In response to probing for an explanation, group members used such phrases as "departments were reluctant to serve nursing or to assume tasks or to answer requests for the initiation of new functions or services that might affect their performance indices." (If, indeed, this is an accurate observation, it represents a serious dysfunctional consequence of the LPC program.)

The nursing group perceived the LPC program as having value beyond offering a potential financial incentive. As indicated previously, it perceived the program as being of value in improving efficiency. In addition, it said it believed that the program had improved morale of employees in *other* hospital departments. The group said that, prior to initiation of the LPC program, most, if not all, surveys, programs, and analyses, were focused on the Department of Nursing. In the opinion of this group, the fact that the program affected all hospital departments improved morale, in that "the entire hospital was being looked at rather than just nursing."

SUMMARY AND CONCLUSIONS

Summary

Hospital W was one of two hospitals selected for case study prior to completion of the experiment. As a result, two series of interviews were conducted. First, initial interviews with administrative staff members and department heads focused on the first incentive year of the experiment. Second, follow-up interviews were conducted with the assistant administrator for personnel and management analyst services (including CASH-IRE) and the CASH representative assigned to the hospital. These interviews focused on the second and third incentive years. As shown in Table 1, this hospital, as measured by CASH-IRE indicators, remained remarkably stable in the first incentive year and improved during the second and third years.

At the close of the first incentive year of CASH-IRE, Hospital W was computed to be a $10,538 net total loser. As shown in Table 1, this hospital remained remarkably stable during that period:

- Patient days decreased by 545, from 118,704 in the base year to 118,159 in the first incentive year.
- Total standard hours increased 16,028, from 1,394,766 to 1,410,794.
- Actual total hours increased 24,287, from 1,639,166 to 1,663,453.
- Occupancy remained at 88 per cent.
- The performance index declined insignificantly.

A review of the performance of individual departments during the first incentive year showed that the stable performance occurred on a departmental basis as well as on an overall basis; it was not a result of improvement and decline trade-offs. This stability is underscored by the fact that the computed dollar losses were extremely minor with respect to the hospital's overall payroll, which averaged in excess of $6 million during the base and first incentive years.

Generally, the stability described here continued to prevail through the second and third incentive years. In the second, patient days and occupancy

did decline to 115,362 and 85 per cent, respectively; however, by the third year, these figures returned to previous levels — 118,307 patient days and 87 per cent occupancy. The performance index improved in each year — from 85 per cent in the first year to 87 per cent in the second and 89 per cent in the third. Net incentive payments were $72,349 for the second year and $88,522 for the third incentive year.

Interviews conducted with Hospital W's administrative staff, with other key individuals, and with the CASH representative revealed both historical and operational reasons for the hospital's stability during the first incentive year, as well as for its productivity improvements and incentive payment earnings in the second and third years.

Hospital W was one of the first hospitals to subscribe to the services offered by the CASH organization. As early as 1963, this hospital had begun implementing the departmental labor utilization improvement programs developed by CASH. According to the CASH representative, the Nursing, Housekeeping, and Dietary Departments and the Business Office had implemented CASH programs prior to the initiation of the Labor Performance Control program. There was some contradiction in recollections of persons interviewed with respect to the extent to which these departments actively operationalized the CASH programs. The associate administrator of the hospital and one of the assistant administrators stated that the hospital was, historically, actively involved with CASH; however, with the exception of the Department of Nursing, they were unable to indicate the nature and depth of involvement. The assistant administrator responsible for CASH programs indicated that, in his view, nursing was the only area that had participated in the CASH program in other than a superficial manner. There was consensus, however, on the fact that the Department of Nursing, and most of its individual units, had operationalized the CASH programs with significant positive results. Despite the conflicting recollections, it was clear that, historically, this hospital was aware of and receptive to CASH, its techniques and programs.

During various interviews, it was suggested that the hiring of a trained management analyst as the assistant administrator for personnel and management analyst services (including CASH-IRE) was expected to contribute to an improvement in the hospital's performance index. It was learned, however, that this assistant administrator had developed a long-range program for improving management efficiency and effectiveness and that efforts toward an improvement in the performance index were not scheduled to begin until the end of the second incentive year of the experiment.

As reported, the CEO in Hospital W had a strong desire to improve the hospital's performance index. This desire was reflected in her review of monthly LPC reports and in the meetings she had with the heads of low-performing departments.

During the first incentive year, only three or four departments in the hospital registered poor performance indices. It was these departments that the CEO particularly monitored; she called in the department heads for discussion of their low performance index. Admitting and Surgery were two of these departments. As noted by the CASH representative, however, the performance indices of these two departments did not deviate significantly from the median of the performance indices of all hospitals participating in the CASH LPC program.

Interviews conducted with the heads of the four departments reviewed in depth — Laboratory, Dietary, Admitting, and Nursing — revealed a high level of awareness of CASH-IRE, a generally receptive attitude toward the experiment, and some substantial agreement on the potential utility of the program in improving efficiency and cost effectiveness in their own departments, as well as in departments throughout the hospital industry.

The *Laboratory* and *Dietary Departments* demonstrated performance indices of 100 and 105 per cent, respectively, in the base year, gradually improving to 127 and 114 per cent, respectively, by the end of the third incentive year. The hospital administrative staff and the CASH representative concurred in the belief that these departments were well managed, that their performance indices reflected this, and that no special effort was needed to improve their performance indices. Both department heads indicated that their high performance had been achieved independently of the LPC program, saying that the performance index of the LPC program was an invalid measure of efficiency in their departments. The explanations offered, which were identical, related to the fact that the standards developed for the departments were computed on the basis of individual tasks performed during a 28-day period and that subsequent calculations of standard hours required were based on individual standard bases — i.e., tests for the Laboratory Department and census for the Dietary/Cafeteria Department. *The department heads accurately pointed out that the 28-day*

sampling failed to take account of seasonal variations in mix of departmental tasks and that standards must be constantly updated to account for the addition or deletion of tasks performed and/or in the change in mix of tasks if the performance index computed is to have validity. In their final interviews, the CASH representative and the assistant administrator responsible for CASH-IRE made comments relative to the high PIs of these two departments. The representative stated that the equipment in the Dietary/Cafeteria Department might be more advanced than that provided for in the standards. The assistant administrator speculated that the PI in the laboratory might be misleading because standards had not been revised since the time the hospital had acquired a Coulter counter.

The *Admitting Department* demonstrated a performance index of 61 per cent in the base year, which declined to 60 per cent at the close of the first incentive year. The CEO was aware of this, met with the department head, and encouraged her to improve the department's PI. As noted elsewhere in the report, however, no specific, systematic steps were taken to improve its performance during the first incentive year.

The director of admitting and the assistant administrator responsible for this department speculated that the CASH standards were invalid. They explained that this department provided services to patients and physicians beyond those offered in most hospitals. According to these individuals, these services were not accounted for in developing standards, and, hence, the standards were inadequate. At the time of the first interview, the Admitting Department was undergoing a study aimed at determining the validity of those standards. The department head expressed her considerable anxiety over the low performance index of the department and over current efforts to validate standards. In her opinion, she and her staff constantly strived to provide efficient and effective service. Her comments implied that she hoped that the hospital's administrative staff and the CASH organization would accept her explanation at face value, without probing.

The second interview with the assistant administrator responsible for CASH-IRE revealed that the Admitting Department had undergone a complete study, including standards validation and review and revision of policies, procedures, and forms. Subsequent to the study, action was taken to staff more closely in accord with demand for service. In the opinion of both this assistant administrator and the CASH representative, this department's PI improvement from 62 per cent in the second year to 78 per cent in the third year may be directly attributed to the actions just described.

The *Department of Nursing* remained stable during the first incentive year, generating an 86 per cent performance index — the same as was generated in the base year. Nursing personnel interviewed expressed enthusiasm for the CASH program and indicated that negative attitudes toward CASH, expressed when the hospital first initiated contact with the organization, had gradually dissipated. The nurses further indicated that, in the past, CASH programs had significantly contributed to improvement in the department's performance. Interviewees indicated that such programs would probably continue to contribute to departmental improvement. However, in response to questions related to specific activities aimed at improving the performance index, no such activities were described. In the opinion of the CASH representative, the nursing department was quite satisfied with its performance index. The department's stable performance during the first incentive year was reflective of this and of the extremely stable demand for nursing services during this period.

At the time of the second interview, the assistant administrator responsible for CASH-IRE stated that, despite encouragement by the hospital administration, the nursing department was reluctant to do anything to improve productivity. The surgical unit of this department was a particular target of administrative encouragement, but its performance index declined from 60 to 59 per cent between the base and first year and to 55 per cent in the second year. A slight increase — to 58 per cent — occurred in the third year. This increase appeared to be the result of a small increase in the number of cases. Overall, the nursing department performed with unusual consistency, demonstrating an 86 per cent PI in the base year and in each of the three incentive years.

Despite Hospital W's long-term, and apparently positive, relationship with CASH, the uniform high level of understanding and receptivity to the LPC and CASH-IRE programs, and, in particular, the CEO's interest and desire to improve, this hospital's performance index and its departments' component performance indices remained stable through the first incentive year. Among the explanations for this stability were:

1. The original base-year performance index computed for Hospital W (by CASH) with

unaudited data was between two and three percentage points less than that calculated subsequently with audited figures. (It was not until the first incentive year was almost complete that the audited base-year performance index was computed.)

2. Both the unaudited and audited base-year performance indices of Hospital W were quite high relative both to other hospitals participating in the experiment and to all hospitals participating in the LPC program. The hospital's relatively high performance index and the related low margin for improvement may have been a factor in its not seeking more aggressively to improve its performance index.

3. A sharp mid-year decline in occupancy, without a commensurate reduction in staffing, may have contributed to the hospital's annualized stability. There is some speculation by CASH that the hospital administration may again have been lulled into a false sense of accomplishment by the high performance index shown in the first half of the year (related to high occupancy), which was offset by a decline in the latter half of the year. (A graphic analysis of performance index against occupancy made by the evaluation team reveals that this explanation may have limited value. During the first six periods of the first incentive year, the hospital's performance index averaged 85 per cent, whereas in the latter six periods it declined only one per cent to 84 per cent.

4. The hiring of an assistant administrator responsible for management analyst services and his assumption of responsibility for CASH programs may have contributed to the stability of Hospital W. Seemingly, the administrative staff of the hospital relied heavily on this individual to promote performance index improvement throughout the hospital. Improvement of the hospital's performance index was not a targeted goal scheduled by this individual during the first incentive year of the experiment. Rather, performance index improvement was scheduled for the latter half of the second incentive year and through the third year. Heavy reliance on this individual and on his schedule for action may have contributed to the hospital's stability.

According to the CASH representative, first incentive year levels of understanding of, and receptivity to, IRE and LPC remained unchanged through the second and third years of the experiment. The assistant administrator responsible for CASH-IRE said that he believed, primarily as a result of an improved and uniform distribution of LPC data, that interest and receptivity improved among both the administrative and the department head staffs. This assistant administrator attributed the hospital's improved PI and related incentive payments in the second and third years, in part, to improved dissemination, related increased understanding and receptivity, and improved attitudes.

The CASH representative and the assistant administrator responsible for CASH-IRE provided identical explanations for the hospital's accomplishments in the second and third years. On a hospital-wide basis, development of service demand projections and the planning of staffing accordingly, insofar as deemed possible, was seen as a significant contribution to accomplishments. With respect to specific departmental actions, both interviewees pointed to studies undertaken in the Admitting Department and in the Business Office. As indicated, a direct relationship can be established between action taken in the Admitting Department and the improved performance index. No such relationship can be established with respect to the Business Office. It was speculated that two factors may explain, in part, the lack of improvement in the Business Office:

1. A new automated data system was installed, which required the maintenance of both the automated system and the manual system for some period of time.

2. Actions taken in relation to improving the Business Office PI may have been taken at the end of, or after, the experiment.

With one exception, at the time of the first interview, all of the interviewees — both at Hospital W and at CASH — offered the consensus that the financial incentive provided little motivation for performance improvement to either the hospital administrative staff members or the department heads. The hospital interviewees generally perceived themselves as professionals responsible for the delivery of high quality medical care in as effective and efficient a manner as possible. Thus, their perceived professional obligations caused them to continue to strive to improve care while optimizing personnel resource utilization, with financial incentives having little or no impact.

The one exception was the assistant administrator responsible for CASH-IRE — a key staff member —

who said he was motivated by the financial incentive. At the time of the first interview, the hospital was entering its third incentive year of the experiment. The interviewee stated that he was highly motivated by the financial incentive and that he had established as one of his personal goals the attainment of a substantial financial incentive payment for the third incentive year of the experiment.

In the follow-up interview, the CASH representative maintained the opinion that the financial incentive offered little or no motivation for improved performance at Hospital W. The assistant administrator responsible for CASH-IRE said that, in his opinion, some motivation had been generated in the second year and, particularly, in the third year, after an incentive payment had been received for second-year improvements.

Inquiries regarding the 110 per cent charge-back feature of incentive computations also produced similar responses from the CASH representative and the assistant administrator. They agreed that some mechanism for ensuring that productivity gains were not accomplished at the expense of quality of care was necessary. They also agreed, however, that Hospital W may have, in effect, been penalized, in that the several departments performing at over 110 per cent were doing so without sacrificing quality of service.

It is significant to note several other points raised during the second interview with the assistant administrator responsible for CASH-IRE. First, he commented that he believed the implementation of the experiment at his hospital had been untimely. It had coincided with his arrival and, as a result, did not receive his full attention. The timing was also poor in that the experiment paralleled the planning for, and involvement in, hospital construction — both activities requiring considerable attention by the administrative staff. Some of this attention might otherwise have been devoted to hospital operations in general and to the experiment in particular. Second, the assistant administrator offered the opinion that most hospital department heads require management training before they can begin to apply a tool such as the LPC program. Such a training program was instituted in the latter months of the experiment and terminated after the experiment was over. Third, the assistant administrator stated that, if the hospital were given another opportunity, such an experiment would be handled very differently. Generally, he said, it would seek greater involvement on the part of department heads and employees. Further, plans would be developed for returning incentive payments to employees.

At the time of the second interviews, the hospital was still deliberating about how to distribute the incentive payments. Of the approximately $150,000 earned, $25,000 had been set aside for the development of educational programs and tuition reimbursement for employees. An equitable means was being sought for distributing the balance of the money to employees.

Conclusions

A set of conclusions was drawn on the completion of the first incentive year. While these first conclusions were tentative, they are presented here together with the conclusions drawn at the completion of the experiment. The first conclusions were:

1. The financial incentive of CASH-IRE, for the most part, prompted no increase in motivation among members of the administrative staff or department head staff of this hospital to improve either departmental or overall hospital productivity indices. (The CEO at the hospital at the time the experiment was initiated was not the one there at the time of the interviews. While the former may have been motivated by the financial incentive, no evidence was found of specific programs to improve the hospital's performance index.)

2. The Labor Performance Control program was being effectively utilized by the administrative staff of the hospital to identify low-performing departments within the organizational structure. Activity in the first incentive year was, seemingly, limited to this identification process, with solution-oriented activity slated for initiation at the end of the second incentive year and during the third.

3. The retrospective approach to computing the base-year performance index, and the time lag between its computation and an audit of the data on which it was computed, may have contributed to the hospital's failure to take action to improve its performance index. There is some evidence that the hospital was lulled into a false sense of accomplishment, owing to its being projected as a winner for most of the first incentive year — a projection based upon its unaudited base-year performance index.

4. Preliminary computations indicated that this hospital would be a minor incentive winner in the second incentive year, and a major winner in the third year. These projections suggested that, in historically well-managed institutions, the high initial performance index may be satisfying, and may result in a lag of at least one year before advantage is taken of LPC data and action initiated to earn a financial incentive. (The initial poor performer has greater margin for improvement, more leverage for urging improvement, and more options.)

Conclusions drawn at the end of the experiment were:

1. The financial incentive was clearly a motivating factor for the individual with day-to-day responsibility for CASH-IRE. Subsequent to the receipt of the first incentive payment, the hospital administrative staff and some department heads may also have been motivated by the financial incentive.

   Since the assistant administrator responsible for CASH-IRE and the administrative staff were generally concerned with cost-effective operations, performance improvements cannot be directly attributed to the financial incentive.

2. Conclusion #3, drawn at the end of the first incentive year, stands as a final conclusion.

3. The LPC program was effectively used to identify low-performing departments. In at least one department (Admitting), action was initiated subject to this identification, and productivity improvement was achieved.

4. LPC reports, in part, provided the impetus for the development of a service-demand projection plan, which contributed to improved hospital-wide labor resource allocations, as reflected by the improved overall performance index.

5. The presence of an administrative staff member with a systems and industrial engineering orientation was a major factor in this hospital's understanding and use of the LPC program and of the hospital's improved productivity.

APPENDIX

SELECTED CHARACTERISTICS OF EXPERIMENTAL HOSPITALS

Characteristics[1]				Performance Summary[2]—Change in Performance Index (C/PI)[a]; Cost Savings (Savings)[b]; Net Total Award (Award) for Each Incentive Year[c].								
				First Incentive Year			*Second Incentive Year*			*Third Incentive Year*		
Hospital	Number of beds[a]	Type of Ownership[b]	Location	C/PI	Savings	Award	C/PI	Savings	Award	C/PI	Savings	Award
A	52	Proprietary	outside urban area	√	√	√						
B	325	Nonprofit	urban area				√					
C	524	Nonprofit	urban area	√	√	√	√	√	√			
D	243	Nonprofit	urban area	√	√	√	√	√	√	√	√	√
E	73	Proprietary	urban area	√	√	√						
F	380	Nonprofit	urban area								√	
G	24	District	outside urban area	√	√	√						
H	270	Nonprofit	outside urban area				√	√	√	√	√	√
I	343	Nonprofit	urban area				√	√	√	√	√	√
J	112	Proprietary	outside urban area									
K	396	County	outside urban area								√	
L	125	Nonprofit	outside urban area							√	√	√
M	96	Proprietary	urban area	√	√	√	√	√	√	√	√	√
N	128	Proprietary	urban area				√	√	√			
O	53	Proprietary	urban area									
P	625	County	outside urban area				√					
Q	150	District	outside urban area	√	√	√	√	√	√	√		
R	349	Nonprofit	outside urban area							√	√	√
S	447	County	outside urban area									
T	76	Nonprofit	outside urban area								√	
U	189	Nonprofit	urban area									

[1] Characteristics information derived from Protocol for Experiment.

a. Number of beds is at the time of sampling.

b. Hospitals M and Y are listed as proprietary but are nonprofit.

[2] Performance summary information derived from incentive calculations (Plan Administrator Worksheet).

a. A check in the C/PI column denotes a positive change in performance index (C/PI) from the previous year to the incentive year.

b. A check in the savings column denotes a positive cost savings.

c. A check in the award column denotes the earning of an incentive award (that is, a positive net total award).

SELECTED CHARACTERISTICS OF EXPERIMENTAL HOSPITALS

Characteristics[1]				Performance Summary[2]—Change in Performance Index (C/PI)[a]; Cost Savings (Savings)[b]; Net Total Award (Award) for Each Incentive Year[c].								
				First Incentive Year			*Second Incentive Year*			*Third Incentive Year*		
Hospital	Number of beds[a]	Type of Ownership[b]	Location	C/PI	Savings	Award	C/PI	Savings	Award	C/PI	Savings	Award
V	140	Nonprofit	urban area	√	√	√		√	√	√	√	√
W	368	Nonprofit	urban area				√	√	√	√	√	√
X	93	Nonprofit	urban area	√	√	√				√	√	√
Y	47	Proprietary	outside urban area									